

IT firms brush aside Mainland unrest

While IT execs expressed their regret over the bombing, they expect business to proceed as usual

By Megan Scott

With anti-American and anti-NATO sentiments running high across China last week, many in the IT industry here did not wish to talk about the recent Chinese embassy bombing in Belgrade, Yugoslavia, referring to the issue as a "hot potato." Nevertheless, *Computerworld Hong Kong* was able to pin down several IT executives willing to comment on the bombing's impact on the IT industry.

"This is both a tragic and unfortunate event but I do not expect it to have an impact on U.S. business with China," said Bill Marriner, chairman, president and CEO at U.S.-based storage and tape backup firm Exabyte, who recently returned from a visit to the Mainland.

Sybase Chairman and Chief Executive John Chen shared Marriner's optimism but was more cautious.

"In the very near term, we could see a slowdown in new contracts," said Chen, adding that it could take a bit of time for the "dust to settle" before Sybase resumes high growth. Nevertheless, technology is a "must" for the Chinese economy to continue its GDP and productivity growth, Chen said.

Down with the U.S.A.!

Meanwhile, calls for a boycott on anything American were heard across China last week. Chinese protesters

were reportedly calling on their countrymen to avoid everything American from Motorola to Coca-Cola.

"I don't know if there are formal bans yet but there are sure a lot of people talking about it. I know that there aren't any American movies on Chinese TV right now. They were all replaced by Yugoslavian war movies and Korean war movies," said one American working in Beijing.

The good news is that "IT will probably be more resilient than some other industries just because everybody is so committed to that market," said Jared Peterson, Beijing-based research director at market research firm International Data Corp. (IDC) China.

Meanwhile, outside investment could experience a downturn in the short run if investors have witnessed the "harsh protests" in Beijing, according to Peterson. "If you're an investor about to make a deal and you see this type of activity, you're going to take pause with it," Peterson said. With IT gaining more interest from venture capitalists, the protests will undoubtedly scare some investors away, Peterson added.

Despite anti-American sentiment



The bombing of the Chinese embassy in Belgrade is not expected to seriously affect IT companies conducting business in the PRC.

running at fever pitch recently, both Marriner and Chen indicated they have little concern for their safety in China.

Marriner was on his way to Tokyo from Shanghai on the day of the bombing and was unaware of the incident until reading the reports on the plane. "I personally would not be hesitant to return to China at this time," he said last week after the U.S. State Department issued a warning to U.S. citizens traveling to China. That warning has since been withdrawn.

For Chen, being Chinese-American has its benefits. Chen said he was not concerned for his personal safety in China and Hong Kong since

he speaks the language fluently and is Chinese-American.

A dose of realpolitik?

Another side to the bombing incident relates to China's bid to join the World Trade Organization (WTO). There's a general consensus that with the Chinese media reports being so one-sided that this is a "bit of a play" for WTO entry, Peterson said.

China has been vying for entry to WTO for over 10 years. On the IT front, negotiations have recently centered around China's reluctance to open up its telecommunications market and eliminate tariffs on IT products.

In the past, one of the "hinge issues" has been opening up the telecommunications market and giving service access to companies like AT&T, GTE, France Telecom, Cable and Wireless, and Alcatel, Peterson said. With the bombing incident, the Chinese government could play the victim and use this as an "anger card" at the negotiating table, he said.

Another analyst agreed. It seems a fair assumption to make that "the government will no doubt be happy to use this latest development in its ongoing

negotiations over the WTO issue," said Simon Barker, chairman of market research firm The New Century Group.

A spokesman for AT&T said the company was currently not taking interviews on WTO.

However, recent public comments by Mainland officials lend credence to speculation the government has plans to use the bombing to push for WTO entry.

Last Saturday, Mainland central bank governor Dai Xianglong reportedly indicated that Beijing would use the Belgrade embassy bombing as leverage in its WTO negotiations with the U.S.

In this issue

News

In a bid to increase efficiency and cut supplier costs, Wallem Shipmanagement has implemented an outsourced Internet-based procurement system that was developed by local trading application provider Arena. Megan Scott reports on page 2.

Less than three weeks after reports first surfaced that Lotus President Jeff Papows had embellished stories of his military exploits, Papows is now the target of a sex-bias case filed in the U.S. Details on page 4.

Departments

Opinion	6
Interface	7
Market analysis	8
Application development	14
Product news	15,18
After hours	19

NETWORK WORLD HONG KONG



This month's *Network World* features a discussion with Bill Marriner, chairman, CEO and president of Exabyte, on the rise of storage area networks. Our five-page supplement starts on page 9.

MARKET PLACE Pages 16-18



San Francisco 'Net culture may boost Hong Kong

By Clare Haney

IDG News Service, Hong Kong

Hong Kong is poised to make its mark in Asia in electronic commerce and as a broadband services provider, according to the former co-founder of a San Francisco-based Internet portal company, who added that the experiences of 'Net startups in the U.S. can offer useful lessons for companies here.

"Electronic commerce is really about middlemen and making it easy for people to buy things," said Malcolm CasSelle, now involved with content and acquisition investments at Pacific Convergence Corp. (PCC), a Hong Kong-based broadband service joint venture between Intel and local company Pacific Century Group. "Hong Kong is made for transactions. There's a lot of potential here," he added.

CasSelle is the co-founder of NetNoir, a U.S. multimedia company targeting the African-American community.

PCC, set up in March 1998, will make public announcements in a few months as to how it intends to become a pan-

Asian broadband services player, CasSelle told IDG News Service in a phone interview.

CasSelle feels that existing Asian broadband-service providers Hong Kong Telecom and Singapore Telecom have been going about the business the wrong way by failing to capture the customer's imagination. "You need to offer an innovative service in an area where there are few other options," he said.

"You have to keep content in mind, as well as the convergence of services."

In an informal chat with an audience of local venture capitalists here last week, he described how the experiences he gained at NetNoir could prove useful in Hong Kong.

Asia currently lags U.S. Internet businesses by between two to four years in terms of having the necessary 'Net infrastructure in place, CasSelle estimated, although the requisite skills are already on tap here.



CasSelle: Hong Kong Telecom has been going about the business of broadband services the wrong way.

"It's as though you were able to go back to high school knowing all that you've learnt in college," CasSelle said about Asian 'Net businesses. "You can take something you learned and go back in time and do it over."

Asia is at the stage of establishing brands, building 'Net communities and incubating technologies, CasSelle said.

He explained how NetNoir came into being by a string of apparently unrelated occurrences. CasSelle recalled being very impressed by Apple Computer Co-founder Steve Jobs when he came to address a Stanford University class on entrepreneurship that CasSelle was attending.

CasSelle was even more excited when he got an engineering job at Apple working on what would later become the PowerPC chip. The excitement lasted until he started working there. "Apple was the most mind-numbingly boring experience I have ever had," he said. "It was a huge

place that had really lost a lot of entrepreneurial enthusiasm. I needed to go start something."

Through a friend in Hong Kong, CasSelle then hooked up with Los Angeles entertainment lawyer David Ellington at the time when CD-ROM and multimedia technology were much in vogue. When the duo attended the first Music and Multimedia Conference in San Francisco in the early 1990s, they were horrified by the older generation of musicians the conference attracted and decided that they should put their energies into an IT venture involving black culture such as hip-hop music. They put together a business plan for NetNoir, what today would be termed a portal for black entertainment.

Luckily, the pair were in the right place at the right time. Their meeting with the head of America Online at the Comdex 1994 show came the day after the announcement of Greenhouse, an AOL initiative to finance online services providers. So, NetNoir became the first Greenhouse company to get funded.

"It was the best and worst thing for
continued on page 4

Wallem sets sail with procurement system

By Megan Scott

Wallem Shipmanagement announced this week that it has implemented an outsourced Internet-based procurement system for its more than 100 managed vessels and approximately 200 selected marine suppliers.

Wallem Shipmanagement is a unit of Hong Kong-based Wallem Group which provides ship owning, ship and cargo brokering, ship agency, and

shipyard and marine equipment services along with its ship management services.

With the launch of its procurement system, Wallem becomes the first user of the Gateway supply chain management system developed by local electronic trading application provider Arena, company officials said. The Arena business-to-business system electronically simplifies portions of the ship provisioning process, including issuing requests for

quotations, receiving quotes, sending purchase orders, and receiving purchase order responses.

Reduced telecommunications costs, reduced labor expenses, and less confusion in the quotation process are the main business benefits of the system, according to Mark Haslett, Wallem's general manager of procurement. "Basically, it eliminates duplication of effort in data entry work; simplifies and speeds up

our processing; networks information for us; and through control on suppliers' quotation delivery formats, minimizes errors and exceptions due to miscommunications," Haslett said.

Previously, suppliers faxed their documents to Wallem and that information had to be re-keyed into their system manually. With Arena's Gateway application, Wallem will now be able to transfer and manage documents via the Internet.



Wallem expects its 100 managed vessels to benefit from Arena's Internet procurement system.

Along with the Gateway software, Arena will also provide a document translation service for all EDI and proprietary file formats and a comparator table for quotations, explained Alison Greene, marketing communications manager at Arena.

The comparator table is "simple to use" and provides analysis of information on prices; delivery times; original equipment manufacturer information; comparisons for offered items against requested items; units of measure confirmations; and updated exchange rates for all currencies in US dollars, Haslett said.

Currently, Arena has set up Wallem's 202 selected suppliers with Web browsing capabilities to access Arena's EDI system over the Internet. In the near future, Arena has plans to provide connectivity over a virtual private network that will be designed, implemented, and hosted by AT&T, according to Greene.

Going forward, Arena also plans to set up an "undetermined" number of suppliers with their own Arena Gateway

applications which can save them time on document preparation, Greene said. In addition, Arena plans to add "track and trace" features in the future to help companies track orders through the entire logistics cycle, she said.

In addition to improved efficiency and reduced labor costs for suppliers, Haslett said the system would increase turnover between the ship management company and its suppliers.

"We will...have validation much earlier. We will have confirmation of everything on a line-item basis; so effectively account queries turn into black and white," Haslett said.

On the technology front, Wallem is operating a JBA International ERP system running on an IBM AS/400 server. The company uses a Java-enabled browser and a 128Kbps leased line connection to access the Gateway software which resides on Lotus Domino servers at Arena.

The cost of Arena's Gateway application was not disclosed.



Compaq ProLiant 1850R and 6400R — space-saving innovative design with uncompromising power

Who can give me
more power per
square inch?

Compaq, the world's leading provider of servers and rack optimized solutions, now adds two new members to its ProLiant server family - Compaq ProLiant 1850R and ProLiant 6400R - specifically designed for space-constrained data centres. Their rack-optimized, modular design makes them easy to access and service, so your IT organisation can be more productive. They also provide the uncompromising reliability and manageability you've come to expect from Compaq. Experience the power today. For more answers, better answers, visit www.compaq.com.hk.

ProLiant 1850R

- Intel® Pentium® III processor 500MHz (quad processor capable)
- Rack, 3U (5.25" tall), up to 28 Intel® Pentium® III processors in 42U rack
- 512KB secondary cache
- 100MHz ECC registered SDRAM
- 72 8GB standard internal storage, 109 2GB with optional drive cage
- Up to 4x1" hot plug drives
- Four expansion slots - 3 PCI, 1 shared PCI/ISA
- 10/100 TX embedded UTP
- Y2K Compliant



ProLiant 1850R

ProLiant 6400R

- Intel® Pentium® III Xeon™ processor 500MHz (quad processor capable)
- Rack, 4U (7" tall), up to 40 Intel® Pentium® III Xeon™ processors in 42U rack
- Integrated 512KB, 1MB or 2MB secondary cache
- Up to 4GB ECC protected memory
- 72 8GB standard internal storage, external storage: SCSI - 1 45TB, Fibre Channel - 8 4TB
- 4x1" hot plug drives
- Six 64-bit expansion slots - 5 PCI with fault-tolerant push button PCI Hot Plug, 1 shared PCI/ISA
- Dual port 10/100 Ethernet network controller
- Y2K Compliant



ProLiant 6400R

COMPAQ Better answers.™

Go to Compaq ActiveAnswers www.compaq.com/activeAnswers and accelerate your time to enterprise solution success!

For more information about Compaq ProLiant servers, please fax this coupon or an enlarged copy of your business card (specifying "ProLiant 1850R/6400R") to Compaq at 2805 4294.

Name _____ Title _____

Company _____

Address _____

Tel _____ Fax _____

Your preferred dealer _____

PL1850R/6400R (Please use block letters)



COMPAQ AUTHORIZED DEALERS (HK):

- EPRO Systems (HK) Limited 2951 1063 • HK Telecom CSI Limited 2888 3311
 - JON Technology Hongkong 2590 9090 • Legend Expert Systems Limited 2911 3388
 - Microware Computer Systems Limited 2856 5678 • SIS International Limited 2565 1682
 - System Pro Computers Limited 2579 5204
- COMPAQ AUTHORIZED DEALERS (MACAU):
- JON Technology (Macau) Limited (853)311 9990
 - Mega Tecnologia Informatica Lda. (853)305 317

Intel, Intel Inside Logo and Pentium are registered trademarks of Intel Corporation. Pentium III Xeon is a trademark of Intel Corporation.

J.D. Edwards to offer front-office apps through Siebel

By Stannie Holt
US InfoWorld

Through an alliance with Siebel Systems announced last week, enterprise resource planning (ERP) vendor J.D. Edwards & Co. hopes to add a major missing piece to its menu of business applications: sales and telemarketing. Until now, J.D. Edwards has been the largest ERP vendor not to offer so-called "front-office" applications either under its own name or through a partnership, while Siebel is the largest front-office vendor.

Under the agreement, J.D. Edwards will resell Siebel's sales-oriented applications, and both companies will collaborate in building integration between the Siebel Sales suite and J.D. Edwards' flagship OneWorld ERP suite, company officials said. The integrated

version should be due out by the end of this year, they added.

The Siebel partnership will also fit into larger plans J.D. Edwards has for electronic commerce, which it plans to unveil at its user group meeting this week in Denver, company officials said.

It was high time J.D. Edwards added a sales component to its well-regarded manufacturing and financial applications so it can compete with other ERP companies, such as Baan and Oracle, said Joshua Greenbaum, an analyst at Enterprise Applications Consulting, in Berkeley, California.

The Siebel partnership probably will not preclude J.D. Edwards from eventually building its own front-office applications, but the Siebel partnership will let it get to market faster, Greenbaum said.

first seminar

focusing on

LINUX

in the Real World

A Half-day Seminar

June 15 1999

2:00 pm - 5:30 pm

Room 603/604

Hong Kong Convention
& Exhibition Centre

In what seems to many as an almost overnight phenomenon, the Linux open-source operating system has emerged from the basements of a die-hard counter-culture into the mainstream of enterprise computing. This seminar will address the fundamental issues that IS professionals and top managers need to confront in determining whether there is a place for Linux in their organizations:

- Why has Linux gained so much momentum in such a short period of time ?
- How realistic is it for managers to adopt Linux as a platform that can be supported and sustained in their organizations ?
- What are the obstacles that managers need to overcome in order to integrate Linux into their established computing environments ?
- Under what conditions and for what applications is Linux a viable alternative ?

Organizer :

Computerworld
HONG KONG

Co-organizer :

Hong Kong Productivity Council
香港生產力促進局

Supported by:

IBM

Novell

ORACLE

Hong Kong Linux User Group

Time	Topic	Speaker
2:00-2:15 pm	Registration	
2:15-2:20 pm	Welcoming speech	Mr. Don Tennant Editor Computerworld Hong Kong
2:20-3:00 pm	Grow with e-business: Start simple with Linux	Mr. Ernest Lee Software Business Manager IBM China/HK Ltd
3:00-3:40 pm	Penguin power for the people: How Linux leads to greatness	Mr. Danyll Wills Internet Technology Manager Oracle Greater China
3:40-4:00 pm	Coffee break	
4:00-4:40 pm	Managing Linux in a networked environment	Mr. Scott Yeh Marketing Development Manager Novell Greater China
4:40-5:30 pm	Panel discussion with local Linux users	Moderated by Mr. Don Tennant

Seating is limited..... Register Now !

Please fill in this form and fax it to 2788-5878 or e-mail us at mandyso@hkpc.org. For enquiries, please call Mandy So at 2788-5669.

- ☐ Yes, I would like to attend the 'Linux in the Real World' seminar.
- ☐ No, I won't be able to attend this seminar. Please send me the related information.

Name : _____ Title : _____

Company : _____

Address : _____

Tel : _____ Fax : _____

e-mail : _____

n.b. For multiple reservations, please make copies.

Lotus' Papows named in bias complaints

By Nancy Weil

IDG News Service, Boston

Lotus Development is the target of "several" discrimination complaints, some of which specifically name company President Jeffrey Papows, who also has been named in a sex-bias case now under investigation by the Massachusetts Commission Against Discrimination (MCAD), a spokeswoman there confirmed last week.

She could not say exactly how many cases have been filed against Lotus, but said that there have been a number of charges leveled against the company over the past three years. The cases are active and being investigated, and have been brought by a number of people.

One case, reportedly filed April 16, charges that Papows and his executive assistant Sharon Ricci, with whom the report said he has had a long-

term affair, singled out female employees for ill treatment, according to a report in a recent *Wall Street Journal*. The claim reportedly was filed by Arlene Greene, who was general manager of a Lotus telecommunications and Internet division. Greene, who worked at Lotus for 11 years, was fired last October and was told that her termination was part of company wide reductions, but the claim alleges that she was dismissed after

complaining about gender and age bias at Lotus, the *Journal* said.

MCAD could not confirm those details of the *Journal* report, written by staff reporter Jon Auerbach, who on April 29 reported a detailed investigative story quoting numerous named sources contending that Papows has fabricated and embellished aspects of his education, family and military histories over the years. The report, published on April 29, was characterized as hearsay by Lotus at the time. (See "Lotus stirred, not shaken, by Papows story," in the May 13, 1999, issue of *Computerworld Hong Kong*.)

A Lotus spokesman could not be reached for comment at the time of writing, but the *Journal* article said the company issued a statement to that publication calling the complaint "without merit" and saying that it "contains reckless and unfounded allegations." Last week's *Journal* report does not mention other MCAD complaints against Papows or the company, a Cambridge, Massachusetts-based subsidiary of IBM.

Papows and Ricci have worked together for more than 15 years at four companies, the *Journal* reported today. Michael Potter, former chief executive of Cognos, reportedly told the newspaper that he ordered Papows not to take Ricci on business trips in 1992. Potter then learned that Papows, who was company president then, took Ricci on a business trip to Paris. Papows left Cognos after being pressured about that incident, according to the *Journal* report.

Papows was interviewed twice to respond to allegations in the April 29 *Journal* report and refused to discuss why he left Cognos, but denied he was forbidden to travel with Ricci, the *Journal* said. Papows de-



After facing reports he embellished his personal history, Lotus' Papows now faces allegations of sex-bias.

scribed his working relationship with Ricci as "very close."

According to the complaint filed by Greene, Ricci "repeatedly" singled out other women at Lotus, urging them to resign or having them fired, the *Journal* reported. Female managers over age 50 were discriminated against because of their age and younger men were promoted instead of the older women, the *Journal* said.

Greene, who is 52, cited a pattern of "disparaging, demoting or otherwise interfering with female employees" in her complaint, the *Journal* said. Papows' ongoing relationship with Ricci meant that she was empowered "to a degree far in excess of her qualifications and job responsibility," the article said.

from page one

us," CasSelle said. "It was the best thing because we were suddenly in business with AOL as our partner and the worst thing because we thought getting funding was easy. That was obviously not the case."

However, when CasSelle and Ellington went to talk to rap record labels and artists about providing content for NetNoir, they ran up against a brick wall. No one got what they were talking about, evidently lacking an understanding of the technology and what it could deliver. "Ultimately, we couldn't close one deal and we started with our own original content," CasSelle said.

So, NetNoir was launched in June 1995 as a digital magazine on AOL. The hard part came when the company tried to raise its second round of funding — it took an agonizing nine months. From then on, there was no stopping the company as it secured major advertisers and hired more people. Come 1997 when the Internet really took off, NetNoir was able to successfully move away from being an AOL-centric business to a Web-based one.

CasSelle has an interesting perspective on how things have changed over the past few years in the Internet market.

"Three years ago, everyone was saying content is king, two

years ago, it was content sucks," he said. "A year ago, it was content is e-commerce, now, it's vertical portals which is where we started back in 1994. We're an overnight success in five years."

He admitted that less than two years ago when he was offered a job at PCC, he "hewed and hawed," knowing he'd be "crazy rich with NetNoir in no time at all." But CasSelle felt what he had learnt at NetNoir could prove useful in Hong Kong. "It was an opportunity I couldn't pass up," he said.

However, he warned against taking a U.S. experience and trying to apply it wholesale to Asia. "There's a completely different set of rules here," he said, giving the example that "Net chat and message boards are much more important in Asia than search engines, given the complexity of Chinese-language search engines, the reverse of the situation in the U.S."

One thing, though, is the same here as it is in San Francisco, according to CasSelle.

"The energy is exactly the same — the energy of people wanting to create new models and get rich," CasSelle said. What's needed to encourage the 'Net market to really take off here is for the stock of local 'Net companies to catch fire as in the U.S. and to be recognized as a prime investment opportunity, he added.



Protect, manage, and share
information in a way
that takes your company
to new heights.

THE
EMC
EFFECT

EMC²

The Enterprise Storage Company EMC Enterprise Storage™ consolidates your company's information and makes it available to

all who need it, regardless of the computers in use. It's the new strategic weapon over 90 of the FORTUNE® 100

companies deploy to achieve their most challenging goals. Cost control. Improved customer service. Y2K compliance.

Risk reduction. Faster time-to-market. Plus the advantages of EMC's Enterprise Storage Network (ESN):

enhanced data access, more efficient network performance, and automated storage management. We call it

The EMC Effect.™ Imagine where we will take your business. Call 852-2839-9600. Or reach us at www.EMC.com.



Protection from the unimaginable



The business world can really eat you alive. Especially if your data is the appetizer. So protect yourself. Look for "DLTtape™" or the authorized DLTtape logo mark on all your backup drives and media. It says you're working with the true DLT™ standard. It says you've got one of the fastest, most reliable, most scalable data backup systems in the business. And it says your DLTtape warranty will stay afloat. Why not get all the details by visiting us at www.DLTtape.com? You'll discover the one tape backup system that really has teeth.



For more information on DLTtape products, please call Quantum's authorised distributor:

Laser Computer Limited: 16/F., Metro Center I, 32 Lam Hing Street, Kowloon Bay, Kowloon, Hong Kong Tel: (852) 2753 1668 (Dealer) 2753 1755 (End-user) Fax: (852) 2753 0337 Website: <http://www.laser.com.hk>

For more information on DLTtape products, please call Quantum's authorised dealers:

JOS Computer 2590 9090 • Laser Computer System Limited 2753 1755 • Memorex - Telex (H.K.) Ltd. 2597 8600 • Microware Computer System 2570 0257 • Senco-Masslink Technology Ltd. 2865 0860 • System-Pro Computers Ltd. 2590 8218 Media only - Pacific Asia Co. 2873 3673 • Saggio Computer Company Ltd. 2886 3863

COMMENT

Don Tennant

E-mail: don_tennant@idg.com.hk

Will DR-DOS be haunted by what its creator said in 1991?

This is so cool! Who would have thought that little ol' us could have played a part in an antitrust case against Microsoft?

Check this out. Earlier this month we received a fax from an outfit in New York City called Blackwells Information Services, requesting a copy of an article from a 1991 issue of *Computerworld Hong Kong*. The article was an interview I conducted with a guy named John Constant, who at the time was product development manager at Digital Research's European Development Center in the U.K. This, of course, was back in the days when there was a Digital Research, the company that brought us DR-DOS — which, if you'll recall, was the only competition that Microsoft's MS-DOS really had. And John Constant is none other than the individual credited with creating DR-DOS.

When the request came in to Alicia Lynskey, our editorial coordinator, for a copy of the article, we found it rather intriguing — we get requests for copies of articles all the time, but rarely for one that dates back that far. We don't even have articles that old in our database, so Alicia had to drag out a dusty old binder of 1991 issues and make a photocopy. And frankly, I didn't even remember doing the interview until she located the issue and I saw the guy's picture.

When the lady at Blackwells Information Services was informed that the article had been located, it was clear from her e-mailed response that she was quite pleased.

"Thanks so much for your response to my fax. Our client is Microsoft Corporation on the West Coast of the United States in Redmond, Washington," she said. "They are asking us to help rush the article back to them in the States. Evidently, the article content is needed ASAP." So she



asked us to send the article by courier directly to Microsoft's headquarters in Redmond, which Alicia gladly did. A subsequent thank-you e-mail from the Blackwells lady to Alicia informed us that Microsoft was "delighted."

Now what on earth do you suppose Microsoft would want with a copy of a 1991 interview I conducted with the guy who wrote DR-DOS? Why would they want it so urgently? And why were they so "delighted" when they got their hands on it?

Well, obviously I can't say for sure. But it seems fairly likely that it has to do with the antitrust suit that Caldera, the little Linux vendor that now owns the rights to DR-DOS, brought against Microsoft three years ago. Because wouldn't you know — it so happens that on May 25, the first of five court hearings will be held on nine motions Microsoft has filed for summary judgment, meaning it basically wants some judge to rule that Caldera's claims are baseless.

Now, to grasp why it is that

tiny Caldera is going through the hassle of fighting Microsoft in court over a dead operating system in the first place, you have to understand the history.

Five years after Novell's 1991 acquisition of Digital Research, Novell sold the DR-DOS rights to Caldera, a small company in Utah that former Novell CEO Ray Noorda set up to pursue some Linux work that Novell had started and then shelved. On the very day of that sale — July 23, 1996 — Caldera filed its lawsuit against Microsoft.

The fact is Caldera has little to lose and plenty to gain. Its lawyers are working strictly for a cut of any damages that may be won, and Noorda himself is bankrolling their incidental expenses. And Caldera is seeing dollar signs, having suggested that something on the order of US\$1.6 billion ought to settle the score.

What Caldera is essentially claiming is that Microsoft intentionally spread fear among users and developers that DR-DOS was incompatible with Windows 3.1; that Microsoft

illegally tied MS-DOS to Windows 95; and that Microsoft used misleading vaporware product announcements to dampen DR-DOS sales. Beginning next week, Microsoft will be called upon to explain why it thinks those charges are without merit.

That, then, appears to be why Microsoft was so eager to get its hands on my interview with John Constant. But what was it Constant said in the interview that Microsoft seems to think might help its case? I read over the interview several times, and I think I have an idea. This is, of course, strictly conjecture on my part. But take a look at the following exchange:

Me: By anyone's account, the success of Microsoft Windows has been phenomenal. Are you working on a Windows-like product to compete against it?

John Constant: You don't really expect me to answer that, do you?

Me: Does that mean yes?

John Constant: Well, look at the technology that Digital Research has produced in the past. We have products like Flex-OS which are all using 386 processing, protected mode, with memory management. We have graphics capability that we've proved for years with our GEM software. We have all the right skills in-house to do a product which would compete with Windows. I can't think of anybody else in the industry who has the right set of engineering skills to do that sort of work. So I think we would be eminently suited to do that sort of thing.

Me: Would you be surprised to see a Windows-like product from Digital Research on the market 18 months from now?

John Constant: No comment.

OK, let's see what we have here, and what Microsoft might be able to successfully argue. While he was coy about it, Constant certainly didn't go out of his way to dispel speculation that Digital Research was working on a product to compete with Windows 3.1. I'm no legal expert, but perhaps it could be argued that the average reader might reasonably conclude from Constant's comments that he was intentionally sending the message to the marketplace that Digital Research was in fact engaged in that effort. So perhaps Microsoft plans to argue that it wasn't tying MS-DOS to Windows 95 any more than Digital Research was trying to tie DR-DOS to its own Windows-like GUI. And how can Caldera fault Microsoft for announcing vaporware when the person credited with creating DR-DOS all but said he

was working on a product that obviously turned out to be nothing but vapor?

Again, this is all speculation on my part, and it could well have been some other portion of the interview that Microsoft is interested in. I really have no idea — I'm just sort of having fun guessing. What I can be reasonably certain of is that Microsoft has reason to believe that there might be something in this interview that could help its defense against Caldera's charges. I don't have a clue if it really will or not. I suppose if I've gleaned anything substantive from all this, it's that you need to be careful what you say. You never know when it's going to come back to haunt you.

How to contact Computerworld

Computerworld encourages readers to contribute their opinions for publication. Letters should be directed to the attention of the Editor. You can contact us by:

Telephone
Our telephone number is 2861-3238. Call during business hours.

Facsimile
Fax us anytime at 2861-0953.

Electronic mail
You can reach the Editor via e-mail at don_tennant@idg.com.hk

Post
Computerworld is located at Suite 1701, K. Wah Centre, 191 Java Road, North Point, Hong Kong.

Computerworld

<http://www.cw.com.hk/>

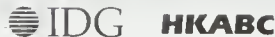
Computerworld Hong Kong is published by IDG Communications (HK) Ltd, Suite 1701, K. Wah Centre, 191 Java Road, North Point, Hong Kong. Tel: 2861-3238, Fax: 2861-0953

EDITOR: Don Tennant
ASSISTANT EDITOR: Sumner Lemon
SENIOR REPORTER: Megan Scott
EDITORIAL COORDINATOR: Alicia Lynskey
SYSTEMS ADMINISTRATOR: Graham Marsh
SALES MANAGERS: Molly Leung, Joanne Lee
SALES MANAGER (Market Place): Andy Lo
SENIOR SALES EXECUTIVE (Market Place): Connie Yip
TRAFFIC MANAGER: Karman Cheng
TRAFFIC COORDINATOR: Teresa Lin
TRAFFIC ASSISTANT: Serena Ko
PRODUCTION MANAGER: Ricky Liu
CIRCULATION MANAGER: Teresa Lui
ASSOCIATE PUBLISHER: Vera Chan
MANAGING DIRECTORS/PUBLISHERS: Micaela de Almeida, Melvyn Bennett

Computerworld Hong Kong is published weekly. All material is copyright 1999 IDG Communications (HK) Ltd. Reproduction is strictly forbidden without written permission.
Sales Enquiries: E-mail can be sent to Sales_HK@idg.com.hk, and Custom Publishing enquiries to Cstm_HK@idg.com.hk
Subscription Rates for one year are: Hong Kong — HK\$200; Macau — HK\$350; Countries within Asia — US\$122; Countries outside Asia — US\$180. A subscription form can be obtained by calling 2861 3238; or by using the FaxDirect Service by dialing 2708 8183 with a touch tone phone, enter 2288, then your own fax number — a subscription form will be faxed to you immediately. For subscription enquiries, change of address or delivery services, please contact our circulation department by: fax (852) 2569-4296, e-mail circ_hk@idg.com.hk or by mail.

Computerworld is on sale in bookshops and hotel kiosks in Hong Kong at HK\$18 per issue.

Printed by: Gear Printing Limited, 1/F., Express Industrial Building, 43 Heung Yip Road, Wong Chuk Hang, Hong Kong. Tel: 2873 3803.



COMPUTERWORLD GROUP

Computerworld Hong Kong is a publication of International Data Group, the world's largest publisher of computer related information and the leading global provider of information services on information technology. International Data Group publishes over 275 computer publications in over 75 countries. Its publications include: *Computerworld*, *Computerworld Asia*, *Computerworld Europe*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*, *Computerworld Canada*, *Computerworld France*, *Computerworld Germany*, *Computerworld Italy*, *Computerworld Japan*, *Computerworld Korea*, *Computerworld Latin America*, *Computerworld Middle East*, *Computerworld North America*, *Computerworld Oceania*, *Computerworld South America*, *Computerworld Taiwan*, *Computerworld Thailand*, *Computerworld UK*, *Computerworld USA*, *Computerworld Vietnam*, *Computerworld Australia*

VIEWPOINT: Lintel reformation

Linux — not Windows — is breathing new life into a tiring Intel platform. Most of the attention being given to Linux focuses on its open-source model of development, distribution and support.

But the most compelling attribute of the little-OS-that-could isn't how it got written. It's how well it works on x86-based chips.

Simply put, Linux on Intel — which we might as well start calling "Lintel" — delivers about three times the price/performance ratio of any other computing platform. Lintel will run most processes three times faster than Windows NT on the same hardware, and you won't have to reboot twice a day.

If your company is running one of the big boys' proprietary Unix platforms, you can get comparable box-for-box performance from Lintel and cut your hardware costs by one-third.

Those aren't just lab numbers. They're the actual experiences of the dozens of early adopters I've spoken to — from industrial heavyweights like BFGoodrich to e-commerce hopefuls like Deja News. Users surveyed by Datapro Information Services rank Linux higher for performance and reliability than both Sun Solaris and Windows NT.

Linux is breathing new life into the Intel platform just when it needs it most. The incremental improvements in x86-based architecture aren't knocking anyone's socks off. Even those gains are being eaten up by the increasingly bloated Windows operating system.

But with Linux, you can even get 486 machines to give you enough performance to serve a purpose. Plus, it's cheap.

And sometimes, you can even get faster tech support answers from the so-called "community" than you can from your pay-to-play operating system vendor.

For you history buffs, the situation reminds me of the Protestant Reformation — with Linus Torvalds playing the part of Martin Luther. As the story is usually told, Luther's 95 Theses set off sweeping changes throughout Europe. That's only partially correct: Few people then had sufficient understanding of things theological to comprehend what Luther was talking about.

But Germany's princes realized that his ideas could be used to throw off the yoke of the Catholic Church. And so they seized on resentments against Rome and the papacy to dissolve the church-and-state duopoly of the time.

Cast Intel as the German princes and Bill Gates as the pope, and you'll see where I'm headed. The Linux story isn't about

open-source religion — it's about power and freedom. You don't need to ascribe to the tenets of Torvalds to be a Linux advocate. You just have to want to determine your own computing destiny without compulsory "indulgences" paid to Redmond.

To extend the analogy, publishing source code is like printing Bibles in everyday German — it's a noble enterprise that lets people think and act for themselves. But when you change the balance of power, things really start happening. Borders change. Allegiances shift with the wind. Fortunes are made and lost. That's what the Lintel Reformation is really about.

So it might be a good idea to stop talking about the doctrines of Linux and start concentrating on the power of Lintel. Whether you adopt his open-source theology or not, Linus Torvalds' operating system could mean unprecedented power and independence for IT for many years to come. Do you really want to miss out on that?

The author, Lenny Liebmann, writes for Computerworld in the U.S.

ReVerse Engineering by Trevor D. Doobie

The (Lucrative) Y2K Business

I met a guy the other day,
a specialist in Y2K.

He said, "I'm leaving — I can't stay —
I'm off today from CLK."

I said, "I'm sorry. No more work?"

He said, "Please, Trev, don't be a jerk.

"I'm going now up to Shanghai —
they need a good Y2K guy.

I'll work in China for 12 weeks,
surround myself with cybergeeks.

"Then having done my job up there
I'll head again into the air
to fly to Rio, then Peru.

They've asked me, 'Fred, what can you do?'

"I'll work in Lima for some time —
until, in fact, the new year's chime."

I said, "Your work, then, will be through?"

He laughed, "If only, Trev, you knew.

"This work on Y2K is great.

I can't see that it will abate.

Until the year two thousand nine,

my business looks, well, more than fine."



Prepore to be swamped. Any nonosecond from now the way your business uses the Internet is going to change. Thanks to e-services, the Internet will no longer just be a collection of websites or a way to handle business processes online. Instead, e-services will be a cotolyst for the service-based economy. Opportunity will explode exponentially. And so will the importance of your servers, as information pours in from oll points ond beyond. Introducing **HP 9000 N-Closs Enterprise Servers**. With twice the performance ond ot holf the price of other mid-ronge servers, they're perfect for the coming onslought of information. The first ever IA-64 reddy mid-ronge server. Reddy for how business is done today. And tomorrow. www.hp.com/go/ncloss



Servers for the next E. E-services.

©1999 Hewlett-Packard Company

hp HEWLETT
PACKARD

For more information, call (852) 2599-7070

Asian remote access market recovering

By David Legard

IDG News Service, Singapore

Sales of remote access servers in Asia (excluding Japan) will increase by 26 percent this year to US\$233 million, according to a report released last week by market analyst International Data Corp. This compares with sales growth of just 6 percent in 1998, largely caused by significant price degradation for concentrators, IDC said, down from

81 percent growth in 1997.

Concentrators combine different data channels onto one transmission line, while allowing each channel to remain independent. ISPs use concentrators to group dial-up Internet connections onto a single, high-speed line, like a T1 line.

Several countries in the Asian region saw 1998 sales by value of concentrators and fixed ports fall from their 1997 levels. The market was



sustained by 67 percent sales growth in China, which became the largest remote access market with a 27 percent market share, according to IDC figures.

Australia has the second-largest remote access server market with a 22 percent share, followed by Taiwan with a 13 percent share. South

Korea, which had been the largest market in Asia in 1997, fell to fourth place, with 1998 sales falling to just over half of their 1997 level. Sales in 1998 also fell in Thailand (down 50 percent), Indonesia (down 46 percent), Singapore (down 38 percent) and Malaysia (down 23 percent), IDC said.

The market research company said that the average price for concentrators fell 32 percent from US\$410 to \$279

Asia-Pacific (excluding Japan) Remote Access Markets by Sales Value

(Sales in US\$ millions)

Country	1997 sales	1997 share	1998 sales	1998 share	98/97 market growth
Australia	33.8	19%	41.5	22%	+23%
China	29.6	17%	49.4	27%	+67%
Hong Kong	14.4	8%	16.1	9%	+12%
India	1.3	1%	7.1	4%	+442%
Indonesia	1.7	1%	0.9	0%	-46%
Korea	37.3	21%	18.9	10%	-49%
Malaysia	10.7	6%	8.3	4%	-23%
New Zealand	5.6	3%	6.2	3%	+12%
Philippines	2.3	1%	4.3	2%	+86%
Singapore	11.2	6%	7	4%	-38%
Taiwan	23.7	14%	24	13%	+1%
Thailand	3.1	2%	1.5	1%	-50%
Total	174.7	100%	185.2	100%	+6%

(Source: IDC, 1999)

during 1998, caused by greater competition from vendors in the carrier and ISP markets. ISPs were the main spenders in the remote access market in 1998, which accounted for the unusually high sales growth in India and the Phil-

ippines, IDC said.

Despite losing market share, Ascend Communications remained the market leader with a 29 percent share, followed by Cisco Systems, 3Com, and the fast-gaining Nortel Networks, IDC said.

Executive Web use may help spur e-commerce

By Jeanette Borzo

IDG News Service, Paris

Senior management support for electronic commerce may get a boost as top corporate executives around the world log on to the Internet more frequently, according to an Andersen Consulting survey.

Andersen surveyed more than 1,700 executives at Fortune 1000 companies (or their equivalents) as well as leading government entities in 24 countries. What Andersen found is that senior executives in the world's major markets are going online more often and are becoming more comfortable using the Internet. For example, more senior executives in Australia, Spain and the U.K. logged onto the Internet in 1998 than in 1997, and they did so more frequently, Andersen said.

Access to the Internet increased slightly from 1997 to 1998, Andersen said, pointing out that 92 percent of CEOs, CFOs, and CIOs (chief executive officers, chief financial officers, and chief information officers) around the world had Web access in 1998, compared to 90 percent in 1997. Of those with access, 83 percent went online at least once a week in 1998, compared to 71 percent in 1997. Half of the surveyed executives said they "feel comfortable" online, which is up from a third in 1997.

Corporate executives in Canada and the U.S. are the most connected to the Web, Andersen said, followed by executives in the U.K., Australia, France, and Spain.

Some two-thirds of U.S. senior executives surveyed have gone shopping online, Andersen found, making them the mostly likely national group to do so. This is significantly higher than the global average, Andersen said. Top management in Canada (48 percent), the UK (39 percent) and Australia (39 percent) were the next most likely groups to make personal purchases online.

Andersen noted other geographical differences in executive Web use. Increasing numbers of Japanese senior executives, for example, are going online once a week (81 percent in 1998, up from 72 percent in 1997), but they continue to be the least comfortable in using the Web and rarely shop online — only 13 percent said they've shopped on the Internet.

Japan and Germany have the lowest level of senior executives with Web access, being the only countries surveyed with access rates lower than 90 percent (72 percent and 82 percent, respectively). German executives came in as the least likely to go online, with only 66 percent of executives logging on once a week in 1998.



The Internet is set to redefine the way we all do business. No matter you are just searching information on the WEB, communicating with business partners through e-mail, or conducting business by e-commerce, a reliable Internet access is crucial.

System-Pro, the largest computer dealer in Hong Kong, and UUNET, a global leader in Internet communications solutions for businesses, is working hand in hand to help the businesses to put their Internet to work.

The Internet solution package is your first step to utilise the Internet's potential to deliver better service, reduce costs and increase efficiencies - all benefit your business and better meet your customer's needs.

For enquiry, call **2575 5304**.

PLAN A HK\$23,988

- First month UUNET Internet access 64K line
- Intel Express 8100 Router
- Intel Pro 10/100 network card
- IBM 300GL PC
- IBM 15" monitor
- Free installation

* Renting monthly charge for UUNET 64K access HK\$3,800. Service subject to 12 months contract.

PLAN B HK\$35,388

- First month UUNET Internet access 128K line
- Intel Express 9300 Router
- Intel Pro 10/100 network card
- IBM Netfinity 3000 server
- IBM 15" monitor
- Free installation

* Renting monthly charge for UUNET 128K access HK\$4,300. Service subject to 12 months contract.

UUNET
An MCI WorldCom Company

IBM
Business Partner

SYSTEM-PRO

System-Pro Computers Limited 17/F Tower 1, Millennium City 388 Kwun Tong Road, Kowloon
Tel: 2590 8218 Fax: 2805 5711 e-mail: enquiry@system-pro.com
Homepage: www.system-pro.com

Spreading the SAN gospel in Asia

Computerworld Hong Kong speaks with Exabyte Chairman, President and CEO Bill Marriner

With storage area networks (SANs) gaining ground in the U.S., Exabyte — a U.S.-based company traditionally known as a tape backup specialist — gathered reporters in China recently to announce NetStorm, the company's first SAN initiative, and spread the SAN word to Asia.

Bill Marriner, chairman, president and CEO of Exabyte, met with Computerworld Hong Kong Senior Reporter Megan Scott to discuss the benefits and challenges of SANs.



BM: I can tell you that Taiwan and Hong Kong will be much further down the path than Mainland China. It's like networking in general. Networking started with the big guys and now everybody's networked. In the States, it's just been in the last few months that the first SAN installations have been happening.

CW: Do you have any companies currently looking, thinking about SANs in Greater China?

BM: Not that I can think of.

COMPUTERWORLD HONG KONG: SANs have become the latest buzzword technology in the U.S. and we've recently seen IBM, Dell, Compaq, and EMC announce SAN initiatives. Is NetStorm Exabyte's first SAN initiative?

BILL MARRINER: This is kind of our public launch of what we've been working on for quite some time. It's really only been in the last few months that the software applications from the Seagates and from the [Computer Associates] have been able to share libraries. Before this, they didn't have those library-sharing features in the software. It's really only been in the last few months that all of this technology has come together.

CW: Where is Greater China right now with respect to SANs? How far away is takeover?

CW: What are the advantages of SANs over traditional storage methods?

BM: Several. One would be labor savings in not having to put people on roller skates running around changing tapes during the middle of the night. I think the important one is the re-centralization of the management of all that storage.

What we've done in many cases, as an industry now, is spread these servers all over the place hanging storage off of all of them. The IT manager, sitting back at the headquarters, doesn't know if that precious corporate asset called information is being safeguarded, protected and backed up religiously every day, every week. That's one of the things a managed SAN can bring back to him: the control that



Marriner: Only time will tell what will happen with standards in the SAN arena.

he had in the days when everything was done in the data center and yet leave him with the advantages that you have from putting all of this decentralized computing power into the hands of the users. I think it's really helping to bring the management of storage into place.

The other thing that some of these tools will do is to help you monitor the performance of the various devices in the network to be able to tune it for performance and identify your bottleneck and bandwidth problems, to be able to use your storage and computing resource

more efficiently.

CW: What's the biggest challenge then right now for companies wanting to set up SANs?

BM: One is the whole education process. Two is finding a vendor who can deliver an integrated working [product] and we make that part of the problem easy for them.

CW: What about the standards issue? Can you update me on the standards debate?

BM: Well there is a body that has been formed and it's kind of a loose organization called SNIA, the Storage Networking Indus-

try Association, and its got software, networking, storage, and systems participants who are working toward trying to define a common set of interfaces and standards for these various components. My own belief is that it will be some time in coming.

CW: Can you quantify that?

BM: Many months. I wouldn't expect to see standards this year. Standards are — while the industry loves them — hard to come by. To make standards happen, you've got to get a lot of compromises made by a lot of

players. I think that's going to take time and yet there's problems that need to be solved today and so we can't all sit here and wait for the magic standards wands to be waved. That's why we're certainly participating in the standards bodies but at the same time we've gone out to forge these partnerships with all the component vendors to see what works and what doesn't.

CW: So, were you involved in last month's announcement that a group of vendors are going to work together to develop standards such as...

BM: No, that's a separate one all together. I think the one you're referring to is the one that EMC is pulling together. EMC doesn't like what's going on and this is one of those compromises that isn't being made.

CW: Does this have anything to do with the SNIA arrangement?

BM: No. EMC has pulled together a group of companies — maybe eight or ten companies — and they're trying to do it EMC-style.

CW: What are you guys doing about that?

BM: We're not in that. We're in the broader organization, SNIA. We were one of the very early members of that organization.

continued on page IV

其實 Seagate Backup Exec™ for Windows NT 及 Microsoft® Windows NT® Server 4.0 (with 10Cal) 互相“揮”影，更加出色，誰可匹敵。

- Microsoft® uses Seagate Backup Exec™ worldwide for protecting the data for their 2300 servers.

“合璧”價 HK\$10,688

原價 HK\$15,800

Special offer valid while stock lasts.

Dealers: Infotech Technology 2723 6316 Automaton Ltd. 2522 2844 System-Pro 2590 8218

For ordering, please complete this form in BLOCK LETTERS and fax to 2561 6345.

☐ I would like to order Seagate Backup Exec™ for Windows NT and Microsoft® Windows NT® Server. Please contact me.

Name: _____ Title: _____ Company: _____

Tel: _____ Fax: _____ Address: _____

CW

Tech Pacific
LEADERS IN TECHNOLOGY DISTRIBUTION

Seagate Software

All brand names, logos and registered trademarks are property of their respective owners.

Cisco's WAN strategy is anyone's guess

By Jim Duffy

US Network World

Now that Cisco Systems has killed off its TGX 8750 ATM switch for the core of enterprise and service provider WANs, the company's plans for this segment of the market are unclear.

Cisco is banking on increased sales of WAN switching gear to enterprises and service providers to drive the company's growth. But the recent news that Cisco discontinued development of its core WAN switch and delayed another enterprise switch for a year indicates that success for Cisco in this market may be more challenging than expected.

Analysts, competitors and other Cisco watchers say the company's long-term WAN switching strategy for enterprises and service providers is still unfocused three years after Cisco's US\$4 billion acquisition of StrataCom. They say Cisco has shipped only one new WAN switching platform since it acquired StrataCom — the MGX 8850 IP/ATM edge switch, which is shipping in limited volume.

Other platforms are merely upgrades of existing StrataCom architectures. And Cisco has lost market share in frame relay WAN switching since acquiring StrataCom, according to Vertical Systems Group of Dedham, Massachusetts.

"In frame switching they've decreased because (Ascend's Cascade switches) got developed and rolled out," says Rosemary Cochran, principal at Vertical Systems Group.

Cisco rebuffed repeated requests from *Network World* for interviews with company executives on the state of its WAN switching business.

The death of the 20G bit/sec TGX 8750 seems to leave Cisco without a core IP/ATM WAN switch to challenge offerings from Ascend, Newbridge and Nortel and with a gaping hole in its "end-to-end" voice/data system story. From a short-term revenue standpoint, that may not be disastrous because Cisco has said in the past that the revenue potential at the edge of the network is 15 times that of the core.

But longer term, a lack of presence in the core may mean a lack of customer lock-in and the additional hardware and software revenue that comes with it.

In any event, the TGX 8750 was supposed to serve as proof of the synergy between Cisco and StrataCom, that IP from Cisco could be "married" to ATM from StrataCom to provide the best of both packet- and cell switching for enterprises and service providers.

Cisco now says its MGX 8850 edge switch, which scales from 1.2G bit/sec to 45G bit/sec, can slide into the core. Indeed, Cisco customer Sprint always intended to use the

MGX 8850 as its core switch for the ION network, a Sprint spokesman says.

But it is still unclear whether the MGX 8850 is a tactical or strategic platform for the core.

Cisco competitors say it is a limited tactical solution. At 1.2G bit/sec, the MGX 8850 currently lacks the horsepower for edge duty, let alone core. They say by the time the MGX 8850 scales to 45G bit/sec — which they believe to be in mid-2000 — it will have already been surpassed by other products.

Cisco's strategic IP/ATM switch for the WAN core, competitors say, is a 120G to 190G bit/sec platform under development, code-named Jupiter. They expect Jupiter to ship in late 2000.

There's also always the possibility that Cisco could acquire its way back into the WAN core by snapping up one of the gigabit/terabit router startups. Juniper and Avici may be hands-off, given that several Cisco rivals have equity stakes in Juniper, and Nortel owns 20 percent of Avici.

But acquiring a router startup at this stage would be a humbling experience for Cisco, observers say. It would signal that the US\$4 billion StrataCom acquisition did not pan out; and that Cisco, the worldwide leader in routers, did not have the wherewithal to develop a high-speed switching router for the WAN core — that "marries" IP and ATM — in a timely fashion.

Whether Cisco acquires or Jupiter emerges, analysts say Cisco to date has been sending mixed messages to the market regarding its strategic technology for the WAN core, IP packets or ATM cells. Though Cisco claims to be "technology agnostic" — having no preference of one over another as long as they offer whatever the customer wants — the company has actually been downplaying the significance of ATM in next-generation data optimized networks.

"Without a core switch, Cisco is going to continue to try and marginalize ATM, except at the edge," says Craig Johnson of The PITA Group in Portland, Oregon. "It's to their advantage to do such a thing and to say that routers are where the intelligence is."

"Cisco is still schizophrenic with regard to ATM and routing," says Tom Nolle, president of consultancy CIMI Corp. in Voorhees, New Jersey. "The strategies that they're talking about are not consistent with their product positions. The service providers are suspicious of people who they think are maybe talking out of both sides of their mouth."

Indeed, Cisco is stating three different reasons for killing the TGX 8750, one of which is slow demand for OC-48 ATM in the WAN core, an assertion Cisco competitors and analysts

say is ridiculous.

"I don't agree with that," says Vertical's Cochran. "Certainly demand hasn't decreased from a year ago; if anything, it's increased."

Cisco itself has underscored the OC-48 packet-over-SONET features of its 12000 GSR router as key to the product's selection by service providers Frontier, France Telecom, IXC, Swisscom and Enron.

Another reason Cisco gave for discontinuing the TGX

8750 is that it could not build a single product at price points that both enterprises and service providers expect. As a result, Cisco "bifurcated" TGX 8750 resources among the MGX 8850 and the Catalyst 8540 enterprise campus switch router.

And Cisco's third reason, according to sources, is that the 20G bit/sec TGX 8750 no longer makes sense for the core when the MGX 8850 scales to 45G bit/sec.

Observers say Cisco's three

different explanations for the demise of its core IP/ATM switch indicates that the company's WAN switching strategy is just as scattershot — even three years after the StrataCom acquisition. This, along with the release of only one new WAN platform in three years and the apparent loss of frame relay market share, signals that Cisco has so far benefited little from StrataCom, and vice versa.

So with a key piece of its

WAN switching strategy missing, and another significantly delayed, Cisco's WAN switching vision is a blur. The company must regain its sight quickly because competitors like Ascend/Lucent, Newbridge, and Nortel can make significant gains in the time it could take Cisco to develop — or acquire — and ship competitive products.

"The real question is, where is Cisco in core ATM," says PITA Group's Johnson.



Anticipating the networks of the future

By Neal Weinberg

US Network World

Think back 10 years. The World Wide Web didn't exist. The notion that you could do business over the Internet was ludicrous. There was no HTML, no browser, no Java.

For that matter, there was no Windows operating system, there were no laptops or PDAs, no Fast Ethernet (never mind Gigabit), no frame relay or ATM, no DSL or cable modems. The big news in 1989 was the introduction of the 33MHz chip, 16Mbps token ring and fractional T-1s. If you could have predicted in 1989 all that's happened in the 10 years since, you'd be far ahead of the game today.

With that idea in mind, we assembled an all-star group of forward thinkers to help paint a picture of the corporate network of 2009. In the stories that follow, you'll find out what futurists,

leading lights at major research labs, technology shapers at established vendors and innovative startups, and strategists at major user companies expect will be the big trends of the next decade. Along with their predictions, the team offers concrete recommendations that will help you prepare for the years ahead.

We all know things are changing fast in the world of enterprise network computing, but you are nonetheless charged with making technology decisions today that your company will have to live with tomorrow.

To make sure you don't get blindsided by technological shifts, we asked leading technology pundits and futurists, people who make a living thinking and writing about technology, to identify five major trends that will shape the industry over the next decade. No one can predict the future, but these folks are paid big money to try. What follows are their insights.

1. Decline of the desktop.

Futurists argue that the pendulum has already begun swinging away from the PC and back toward the server, reversing the tide of the PC revolution, which shifted power from the mainframe to the desktop.

"It's fair to say we may have peaked in terms of how much is going to get loaded on the desktop," says Peter Huber, a lawyer, author and telecommunications specialist who writes a regular column for Forbes magazine. PCs certainly won't disappear. But 10 years from now, people will be using lots of other types of computing devices along with desktops, including handhelds and even miniature "wearable" computers.

Data storage and synchronization, plus more advanced features such as scheduling, will likely occur at centralized server farms that connect the corporate office and remote workers via broadband links.

Paul Saffo, director of the Institute for the Future in Menlo Park, California, goes along with that vision: "The PC-centric order is tottering and definitely giving way to something new. You can feel the center of gravity moving inexorably toward something where OS-based desktop PCs become steadily less important." Conversely, he says, IP networks will become steadily more important.

The concept of monolithic, PC-based applications for functions such as human resources and accounting will give way to a more dynamic notion of a tool kit for a particular task, Saffo predicts. Employees will be able to pick and choose from a menu of specific software tools to complete a particular project. Some of those tools will live on the desktop, but others will live on the network.

Bob Metcalfe, Ethernet inventor and industry pundit, argues that 10 years from now, PCs will be the exception rather than the rule, "with Wintel machines only a bit more important than punched cards today." He sees PCs being knocked off their perch by network computers, Internet appliances (which would include anything from telephone-like devices to televisions), and non-desktop computers, such as enterprise servers and wearable computers.

2. The Internet will rule.

Ten years from now, at least half of all business transactions will take place online, predicts Ray Kurzweil, a pioneer in print-to-speech reading machines and speech recognition technology.

Issues such as security, authentication and quality of service (QoS) will all have been solved, says Internet guru Esther Dyson, chairman of EDventure Holdings in New York. The Internet will be "the basis of everything," she says.

The distinctions between intranets, extranets, the public Internet and corporate nets will disappear. "In 10 years, it's safe to say, corporate networks will have fused with the Internet," Metcalfe says.

David Isenberg, a former Bell Labs engineer who is now an independent consultant, goes even further, arguing that the current Internet may someday be superseded by what he calls the "stupid network." Isenberg says current efforts to add QoS features to the Internet are misguided because they are based on the notion that bandwidth is in short supply and needs to be managed and conserved. His view is that through technological advances, bandwidth will become abundant and inexpensive.

When that happens, Isenberg predicts, a new, stupid network may develop that has no QoS features and simply moves bits, with all of the intelligence residing on the end user's device. In his scenario, the QoS-based Internet will be used for established applications, but the stupid network is where innovation will occur.

3. It's a wide, wide wireless world.

Up to now, wireless has gone pretty much nowhere. Ten years from now, it will be everywhere. Constant wireless connectivity will be taken for granted, Dyson predicts. Arno Penzias, former chief scientist at Bell Labs and current venture capitalist, concurs. Employees will be able to work from home, hotels, roadside rest areas, or wherever they happen to be, and tunnel into the corporate net through virtual private networks, he says.

Most landline telecommunications will be replaced by wireless communications that will include high-resolution moving images, Kurzweil predicts. Wireless will allow people scattered all over the world to easily conduct meetings. Corporate travel will plummet.

The convergence of video, voice and data will have taken place, and consumers will be able to download books, movies and television and radio signals to their portable communications devices over broadband wireless links.



Metcalfe: "In 10 years, it's safe to say, corporate networks will have fused with the Internet."

Sometimes the best service is no service.

Customers love to help themselves. They can get what they want, when they want, not when someone else is ready to serve them. This is where e-business can really make a difference, by extending your existing customer service systems over the Web.

Web-based service allows your customers to find out what they need at the touch of a button, any time of the day or night. No "call back during office hours" or "please hold". Simply happier customers.

IBM Web self-service solutions let you start basic and add functionality as you go. The result: highly interactive apps that link to core data and business functions – and move you to the front of the line. Your customers won't see service via the Web as technology, they'll just appreciate a better level of service. Which makes it easier for them to do business with you.

As you embark on the journey to improve the levels of service you offer to your customers, begin with the IBM WebSphere Application Server – the cornerstone of IBM's Web self-service solutions. WebSphere is a Java™ servlet-based Web application server that delivers flexibility and performance for Web sites offering interactive functionality to customers, extending Web publishing through to enterprise-scale transaction processing.

You can find out more about Web self-service at www.ibm.com.hk or call the IBM Sales Center at 2825 7878.

StartNow for Web Application Server Bundle – HK\$9,000

Build your own Web application—fast—with this special bundle. WebSphere Application Server Standard Edition, WebSphere Studio plus training, all for just HK\$9,000. Order StartNow... now!

Place your order at www.ibm.com.hk/shop_ibm/software.html or call the IBM Sales Center at 2825 7878.

Free CD ROM

Learn more about Web self-service and IBM's suite of proven, secure Web self-service solutions by viewing this informational CD ROM. To receive your free CD ROM please email your details to ibmhk_dnr@hk1.ibm.com



WebSphere Application Server

Lets you host Java servlets on most Web servers, with built-in connectors to tap data and apps you're already using.

WebSphere Studio

A prepackaged suite of tools providing a consistent interface to Web development tools, allowing teams with minimal Web programming experience to construct dynamic Web sites running on the WebSphere Application Server. It consists of Wizards, NetObjects ScriptBuilding NetObjects Fusion, VisualAge for Java, and more.

DB2 Universal Database

Powers some of the Web's busiest sites because it can support a world of users with world-class performance. Fully Java-enabled, it runs natively on all leading platforms.

Net.Commerce software

Combines individual customer service with the ability to close the sale. All in one secure, easy-to-customize package. It includes everything you need to develop, host and operate e-commerce Web sites.

Lotus Notes

Over 34 million people using over a dozen different platforms now rely on Lotus Notes and Domino software for vital business communications. Everything from basic email, to messaging, to highly customized applications integrated into the cores business processes of major organisations.



Solutions for a small planet™

Bringing the word on SANs to Asia

from page 1

CW: What does that mean for the storage market if you've got a group under SNIA and then a group under EMC working on standards?

BM: Time will tell. It's like years ago when you had a VHS standard and a Beta standard and VHS won. Don't know. I can't predict how it's going to come out but, as I say, we have to continue to move forward.

CW: Isn't that a concern for customers, the standards issue?

BM: Yeah. I'm sure it is. But, I also think they won't sit and wait for a magical standard to come about. If there are companies that can solve the problems [companies are] dealing with and deliver a good return on their investment in doing that, I don't think they'll hold off.

CW: Where does Exabyte situate itself with respect to all the other SAN vendors who have been popping up lately?

BM: I think we have two or three differentiators in what we're doing. One, I'd emphasize that what we're delivering is a managed SAN, where you can remotely monitor and manage all of these devices whether they be from the Exabyte manufacturer or from a partner. Few of the SAN initiatives would measure up on that score. You'd be able to network all of these things together but you don't get the advantage of being able to access these Web-based tools to remotely manage the SAN.

Secondly, I think we're further along than most in actually

getting this stuff to work. We've found that many of these components were designed with RAID in mind not with the nuances of tape in mind and you can't simply take a fiber router that was developed for the disk drive industry and apply it to tape and hope it's going to work.

We had to work through 20 different revisions of the firmware to get it to where it properly supported the tape environment. So, I think we're further down the path to delivering [a working product]. Everybody is talking about it. Everybody is waving their hands right now but I don't think many are delivering at this point. We've got tools ready to ship.

CW: How does Exabyte compete against the likes of IBM, Compaq, HP and Dell?

BM: Very well. There's a few elements. Number one is the element of focus. We do network storage and tape backup. That's what we do for a living, period. IBM, Compaq, Dell, Sun and companies like that are first and foremost server companies who do storage on the side. We do it for a living.

So, one is focus. If you think about the sales forces, they are compensated first to sell a server and that's where the money is and that's where they spend all of their time. Then probably they put the RAID disk system on it and maybe once in awhile they remember to sell it with a backup [product]. Our business is selling that backup [product]. I think focus is a key piece of it.

Another piece of it is the ability to do things much quicker. When we make a decision, we can turn the whole world organization to emphasizing the product, to kicking off the promotion, to changing the direction. Those sort of things take months if not quarters in companies the size and com-

plexity of the system houses. I think being fast on our feet, being unbureaucratic in our approach to things is our strategic competitive advantage.

CW: Do you see Exabyte more as a tape backup specialist or as a SAN vendor?

BM: That's a good question. I think that the image of Exabyte is as an 8mm drive company. I think that's a very outdated image and one that we're working hard to change.

First of all, because we're a major player in tape automation and I think with the NetStorm initiative we become much more of a solution provider rather than a component maker. Drives are components, libraries are components, NetStorm is a solution that solves a problem from end-to-end for our customer.

CW: Last May, I noticed Exabyte did away with its Eagle division which focused on technology for the desktop. Was that a good move and why?

BM: Yeah. It was a real good move. First of all, we were losing a lot of money on that end of the business. Exabyte was in the server backup business which is still the business that we're in and very focused on now but we were also in this desktop backup business.

The answer to the question is that desktop backup has been moving for some time now from tape to alternative technologies. It's a dying market and we were losing a lot of money in that end of the business and it was very defocused. We were trying to cover too broad a spectrum of the market, too many technologies and spreading ourselves too thin. So, we're back to doing what we do best.

What the future holds in store

from page III

4. Computers will be everywhere.

By 2009, you'll be walking around with maybe a dozen tiny computers on your body. They will be embedded in your clothes, in your watch and in your earrings. These tiny computers, many with specialized features such as high-resolution displays, speech or speech-recognition capabilities, will be linked together into a body LAN.

You might wear a pin that contains a personal identification chip that will allow you to use an ATM machine or get through the front door at work. The navigation systems now being installed in cars could be included in your new watch. Your jogging shorts may come equipped with tiny computers that monitor your heart rate and notify you if you're starting to overdo it.

You'll probably be wearing a tiny computer that allows you to surf the Web. Communications devices such as pagers and cellular phones will be miniaturized. Another computer may keep track of your daily schedule. All of these devices could be linked to an earpiece that delivers voice messages and to eyeglasses that display text.

Your home will be even more well-equipped. The average household will have more than 100 computers, Kurzweil predicts, and each house will have its own server. Computers embedded in security cameras, motion detectors, lights, alarm clocks, heating and cooling systems, refrigerators, microwaves, communications

devices, PCs, televisions and VCRs could all be linked to the server. You could be at work, connect to your home server and control all of those devices remotely.

This may seem far out, but the futurists are convinced it's only a matter of time. "I think we all agree that networked appliances will be untethered and extraordinarily compact," Penzias says.

Need proof? Stanford University computer science professor Vaughan Pratt earlier this year created a Web server the size of a matchbox using off-the-shelf components. It uses a wireless modem to connect to the Internet and connects to a display that is viewed using special glasses.

There is seemingly no limit to the practical applications of wearable devices. According to Neil Gershenfeld, who co-directs the Things That Think research consortium at the MIT Media Lab, airline mechanics are starting to wear computers linked to display glasses so they can read from a repair manual while keeping both hands free.

Pratt predicts that in 10 years, wearable computers will be common in the business world to support applications for which people now use personal digital assistants — planning and scheduling, reporting and information exchange.

Saffo adds that the proliferation of inexpensive analog sensors, based primarily on MicroElectro-Mechanical Systems (MEMS) technology will allow networks to collect all kinds of information. Imagine that every fryolater at McDonald's has sensors that monitor how well the fries are being cooked and report back to a central server dedicated to quality assurance.

Saffo says these analog sensors will pave the way toward incred-

ible manufacturing efficiencies, mass customization of goods and "consumer connectivity like you never imagined."

5. Convergence of man and machine.

Today, people and computers inhabit parallel universes: People live in a sensory-rich, physical, analog world; computers live in a deaf, dumb and blind digital world.

"That's going to change," Saffo predicts. "We're going to put eyes, ears and sensory organs on our computers and our networks in absolutely unprecedented ways. We're going to ask them to observe and manipulate the physical world on our behalf."

By 2009, Kurzweil predicts, computers will come with built-in video cameras and will be able to identify their owner by face. Advanced speech recognition software will be commonplace, and the majority of text will be created by humans talking to their computers rather than typing.

The graphical user interface will be replaced by the LUI, a language user interface. When talking to their computers, Kurzweil says, people will interact with "an animated personality," or a simulated person. Intelligent software assistants will routinely find information, answer questions and conduct simple transactions on behalf of their owner.

If all this sounds overwhelming, Pratt offers this bit of advice: "Relax, the changes aren't going to come all at once."

Finally, Dyson says that in this fast-paced world it will be difficult to gain a sustainable advantage over your competitors. Her advice for keeping ahead of the pack is a timeless one: "Hire good people."

Reliable Network Relies On Powerful Storage & Backup Devices. What's yours?



Any purchase of **ARCserve IT 6.61 Advanced Edition** plus **HP SureStore DAT8/DAT24**, you can get free

- 3Com OfficeConnect™ 8 TPC Hub (worth \$799)
- hands-on workshop (worth \$300)

ARCserve IT 6.61 Advanced Edition
- \$5,999 -

ARCserve IT 6.61 Workgroup Edition
- \$2,999 -

HP SureStore DAT8 - \$5,660 -

HP SureStore DAT24 - \$8,310 -



Any purchase of **ARCserve IT 6.61 Workgroup Edition** plus **HP SureStore DAT8/DAT24**, you can get free

- 3Com 10/100Mbps PCI Network Interface Card (worth \$500)
- hands-on workshop (worth \$300)



* Special offer valid until June 30, 99 or while stock lasts.

Dealers: Automated Systems (HK) Ltd. 2601 6998
Icon Business Systems Ltd. 2851 2838

Infocan Computer (HK) Ltd. 2882 2277
Interface Computer System Ltd. 2893 8689

Legend Expert Systems Ltd. 2590 0233
Nomura Research 2536 1880

Oasis Computer Consultants Ltd. 2893 3655
Pan Asian Systems Ltd. 2873 9777

Protex Systems Ltd. 2310 1220
Win-Win Solutions Co. Ltd. 2763 0662

Tech Pacific
LEADERS IN TECHNOLOGY DISTRIBUTION

All brand names, logos and registered trademarks are properties of their respective owners.



Authorised
Wholesaler

Hands-on Workshop

For registration, please fax customer invoice and this form to **2561 6345**

For enquiry, please call at 2564 9264.

Topic : ARCserve IT Workgroup Edition and HP SureStore Workshop
Date : June 22, 99 (TUE)
Venue : Hewlett-Packard H.K. Ltd.
17/F, Shell Tower, Time Square,
1 Matheson St, Causeway Bay, H.K.

Topic : ARCserve IT Advanced Edition and HP SureStore Workshop
Date : June 11, 99 (FRI)
Venue : Computer Associate International Ltd.
21/F, World Trade Centre,
28 Gloucester Rd.,
Causeway Bay, H.K.

* Please present customer invoice when you attend the seminar.

Name: _____
Title: _____
Company: _____
Tel: _____
Fax: _____
Address: _____

COMPUTER ASSOCIATES
Software superior by design.

IBM cashing in on e-commerce, Gerstner says

By Juan Carlos Pérez

IDG News Service,
Latin America

About 25 percent of IBM's revenues — some US\$20 billion dollars — are being generated by demand for what the company terms "e-business projects," IBM's Chairman and Chief Executive Officer Lou Gerstner said in a teleconference last week.

"It's worth noting that IBM is already generating more revenue and more profit [from e-business projects] than all of the top Internet companies combined," he said, adding that the top 25 Internet companies, such as Yahoo, Ebay and America Online, generated a combined US\$5 billion in revenue and lost a combined \$1 billion in 1998.

Ford Motor, Charles Schwab & Co. and United Parcel Service are among the companies spending on IBM products to build projects the goal of which is to integrate Internet technology into a company's business processes, Gerstner said.

Schwab will have increased its spending on IBM products — such as S/390 mainframes, RS/6000 servers and DB2 databases — for its online stock trading Web site six-fold in the past three years by the end of 1999, Gerstner said.

Ford is investing "almost all" of the US\$300 million it allocated for a project to develop and deploy new Web applications on IBM equipment, he said.

IBM is also increasing the number of sales it makes via the Web. The company sold US\$3.3 billion over the Internet in 1998, and expects that figure to rise to between \$10 billion and \$15 billion in 1999, he said. Just in the first quarter of 1999, IBM sold US\$2.5 billion over the Web, he said. In December 1998, the company was selling about US\$38 million per day via the Internet.

The Web is also helping Big Blue's bottom line. This year, the company plans to save US\$600 million by providing service and support to clients over the Web, and \$100 million by offering training via the Internet to its employees. IBM also plans to buy US\$12 billion worth of goods over the Internet, eliminating the need to generate over five million pieces of paper.

The real Internet revolution is not tied to hotshot companies like Amazon.com, but to the adoption of the Internet

by regular companies for doing business, according to IBM's chief. That revolution will come "when thousands and thousands of institutions that exist today seize power of this global computing and communications infrastructure and use it to transform themselves," he said.

"Amazon.com is a very interesting retail concept, but wait until you see what [U.S.-based retailer] Wal-Mart is gearing up to do," he said, without offering any details.

A lot of attention has been placed on Internet sales, but those are just part of doing business over the Web. Companies need to re-architect their business processes and their IT infrastructure in order to Web-enable all their supply chain processes, such as inventory, replenishment,

ices in 1999, a 40 percent increase over 1998, Gerstner said.

Looking ahead, IBM is keeping an eye on the trend toward what the company calls "pervasive computing devices." This market is defined as everyday items, such as cars, and common places, such as homes and schools, that, equipped with embedded chips, will feature computing powers and connectivity.

IBM is also interested in

the market for high-end computing for non-scientific tasks, like analyzing data, he said.

In terms of its overall product and service offering, IBM continues to bet heavily on services. The company has been averaging about US\$10 billion worth of new service contracts for the past three quarters.

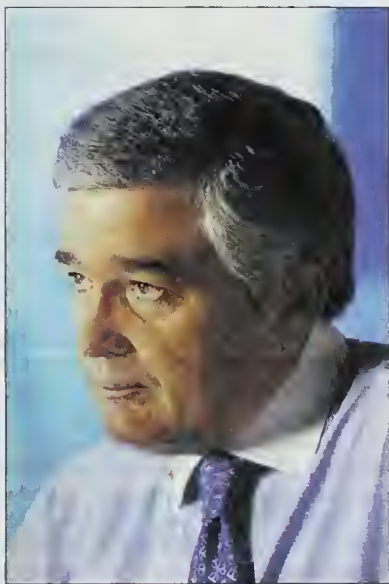
IBM has signed more services contracts in the last four quarters than either Elec-

tronic Data Systems or Computer Sciences Corp. have signed in the last 3 years, Gerstner said. IBM's services unit currently has 130,000 employees and expects to add another 18,000 in 1999, he said.

International outsourcing is also picking up speed. Of the 38 outsourcing deals IBM closed in 1998 worth more than US\$100 million, almost half of them came from outside the U.S., he said.

Meanwhile, IBM's Web hosting business is growing about 100 percent per year, he said.

Gerstner also said that he doesn't think that the PC is dead, but rather that the era of the PC as the main focus of IT investment and innovation is over. The PC will continue to be an important part of companies' IT infrastructures, but the key IT element now is the network, he said.



Gerstner: "Our consulting business is inundated with requests from companies asking us to come in and work with them on their e-business strategy."

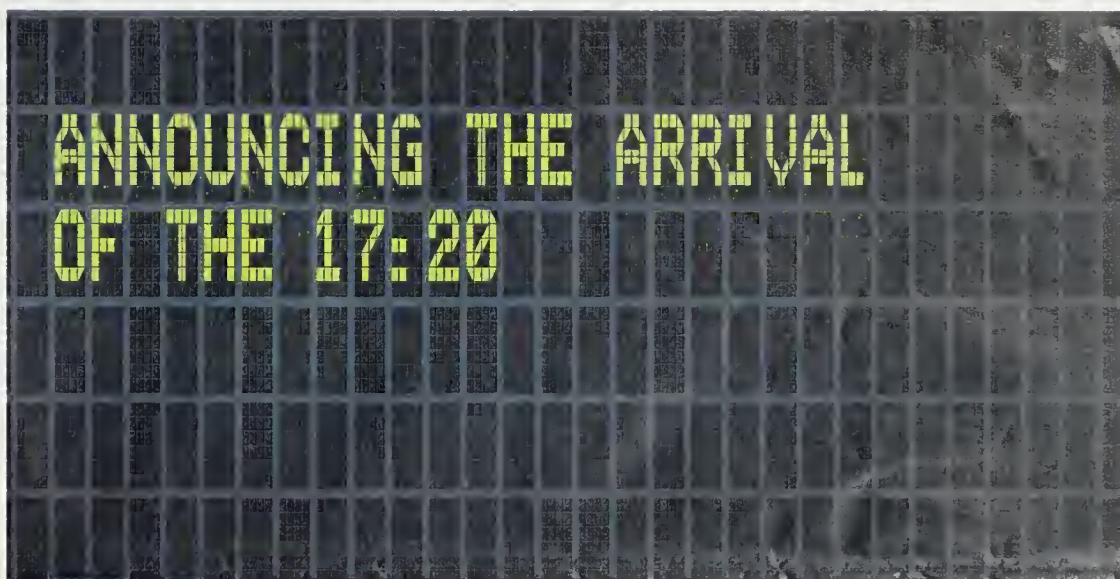
fulfillment, distribution, services, support and accounting, he said.

"Web-enabling these core business processes will deliver returns on investment that will equal or exceed the returns on investments coming just from e-commerce," he said.

Most IBM customers understand they must Web-enable their business processes, but they need help in doing it. This is leading to what Gerstner calls "a gigantic services opportunity."

"Our consulting business is inundated with requests from companies asking us to come in and work with them on their e-business strategy. It's the principal force behind double-digit growth in our consulting business," he said.

The worldwide market for products and services for Internet-related projects is expected to grow at a 20 percent annual clip, Gerstner said, adding that 60 percent of that money will be spent on services. IBM expects to generate US\$3 billion in revenues from "e-business" serv-



A First Class Connectivity Solution

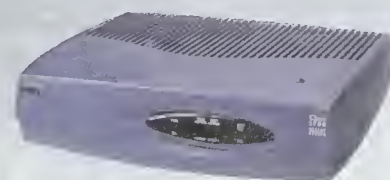
Arriving now for all platforms, the new Cisco 1720 Access Router — the latest addition to Cisco's leading family of access router solutions for growing businesses and branch offices.

With a modular architecture that gives greater investment protection and flexibility, the 1720 offers scalability, Quality of Service (QoS), management and reliability in one package. You save money too. Lower your deployment cost with the 1720's integration of Firewall and Virtual Private Network support.

Special Promotion: For a limited period only, enjoy more than 70% discount* on IOS Firewall with every 1720 access router purchased. IOS Firewall offers per-application-based dynamic access control which prevent unauthorized Internet users from accessing the internal LAN. Faxback the reply form on this page now.

*Normal list price US\$900

The latest member of Cisco's leading family of access routers with Fast Ethernet Interface



The new 1720 Router

Cisco IOS software with integrated Firewall and VPN feature set support Autosensing 10/100 Fast Ethernet + 2 WIC slots for leased line, ISDN and Async Access + Aux port RISC processor IPSec Encryption at 512Kbps for 256-byte packets. Router -firewall-encryption-VPN tunnel server-DSU/CSU-NT1 L2 VPN Tunneling (L2TP, L2F technology) L3 VPN Tunneling (IPSec56, IOS Encryption, GRE). Internal expansion slot for support of future hardware assisted services such as T1/E1 encryption and compression

Fax Now (852) 183 6788

Please fill in details below or attach business card.

Priority Code: A0003007

Name (Mr/Mrs/Miss)

Job Title

Organisation

Business Nature

Address

Telephone ()

Fax ()

Mobile

Email

The first 100 persons who reply will receive a Premium Bond Leather Travel Tag.



Which of the following best describes the industry your organisation belongs in? (please tick one only)

- | | |
|--|---|
| <input type="checkbox"/> Manufacturing | <input type="checkbox"/> Finance/Banking/Insurance |
| <input type="checkbox"/> Computer Hard/Software | <input type="checkbox"/> Transportation/Utilities |
| <input type="checkbox"/> Telecommunications/ISP | <input type="checkbox"/> Manufacturers/OEM |
| <input type="checkbox"/> Government/Public Sector | <input type="checkbox"/> Computer Dealers/Distributors |
| <input type="checkbox"/> Healthcare | <input type="checkbox"/> Hard/Software & Peripherals Retail/Hospitality |
| <input type="checkbox"/> Trading / Import / Export | <input type="checkbox"/> Computer Systems Integrator |
| <input type="checkbox"/> Retail | <input type="checkbox"/> (VAR)/Resellers/Consultants |
| <input type="checkbox"/> Professional Services | <input type="checkbox"/> Education/Training/R&D |

Others, please specify

CISCO SYSTEMS
EMPOWERING THE
INTERNET GENERATION™

Methodology 'not a silver bullet', exec says

By Sumner Lemon

When it comes down to addressing problems in application development, software methodology is no silver bullet, according to Jim Rumbaugh, a software methodologist at Rational Software.

While methodology does not by itself guarantee the development of great software, instituting a development method can help programmers — especially those with limited development

experience — avoid common software development pitfalls, Rumbaugh said in an interview with *Computerworld Hong Kong* last week.

"Everybody makes the same mistakes. Well, not all the same mistakes. But there's a certain range of mistakes that beginners make because they're just susceptible to them," said Rumbaugh.

That's where a good software development methodology can come in handy. "You

go a long way teaching people this fairly straightforward stuff. People tend to make a lot of the same kinds of mistakes, and that's how you can teach them," said Rumbaugh.

Methodology is able to add value because developers can draw on lessons learned in development projects conducted by other organizations, he added.

"There are certain mistakes people are prone to and somebody with experience can help them to avoid that. To some

extent, when you are learning something you can't avoid them entirely — you have to do it and learn from making mistakes not to make them. That's where a good mentor comes in," said Rumbaugh.

Developers should realize that software methodology is not a substitute for development experience. "You can buy our books, go to the courses, but you also have to do it. You don't come out of the course perfect," he explained.

After all, there's more to developing software than a methodology, said Rumbaugh.

"You can't just turn the crank. People keep asking, 'If we do this method, will it tell us how to write the software?' And the answer is no. You still have to put the ideas in there. It'll give you a framework to work with, and it'll give you things to watch out for, but it won't give you 100 percent of the work because it's creative," said Rumbaugh.

Like with other endeavors, learning to develop software is a gradual process that requires experience gained through the practical application of abstract principles.

"People can learn something in class, then they can try it, and it never is as easy as it seemed in the class. And then they have it evaluated by a mentor or



Rumbaugh: "There's a certain range of mistakes that beginners make because they're just susceptible to them"

somebody who knows it. A lot of these things are just a piece of cake for the coach because they've seen it all before. It's hard for the student, but they come in and say, 'OK, here's what you're doing wrong,'" said Rumbaugh.

CA announces Jasmine TND with neural agents

By Elinor Mills

IDG News Service,
San Francisco

Computer Associates International announced at Networld+ Interop last week the beta-test availability of Jasmine TND, the latest version of its database management and application development software, which features neural agent technology for monitoring and predicting patterns in data.

In addition to integrating corporations' information from different sources and different operating systems, Jasmine TND allows administrators to present information online with three-dimensional and other graphics software, said Charles Wang, chairman and chief executive officer of Computer Associates.

"The use of 3-D interfaces will be common in business applications over the next three years," Wang said in his keynote. CA began moving into the 3-D arena with the acquisitions of Viewpoint Data Labs and 3Name3D.

The neural agent technology, which Computer Associates dubbed Neugents, detects patterns in data and enables analysis and predictions of changes. "It tells you when the system has a problem and predicts when problems will arise so you can prevent them," Wang said.

Neugent technology for Windows NT is being beta tested in 40 sites in the U.S., and Computer Associates plans to release Neugent technology to work with Unix servers and OS/390 systems before the end of the year, according to Wang.

"Businesses need to be able to synthesize, analyze

and carefully sift through information...to determine how it can be leveraged," he said. Corporations "need a common information infrastructure, but it must enable development and deployment of intelligent applications."

Wang also announced a new Application Response Option (ARO) for Unicenter TNG and NetworkIT Pro. The ARO technology allows users to monitor the response time of applications and be alerted when thresholds are exceeded. The software works with Windows NT, Windows 95 and Windows 98 clients, Internet Explorer, Lotus Notes and PeopleSoft applications, and is designed to be extended to in-house software without modifying applications or writing new code.

Computer Associates also announced a collaborative partnership with 3Com. The companies will work to enable Unicenter TNG Switch Management Option, for managing network connectivity, to recognize and map 3Com network devices such as CoreBuilder 9000 and 3500 and SuperStack II 1100 and 3300. The companies also will integrate NetworkIT Pro and 3Com's Transcend Network Control Services.

In a final announcement, Computer Associates said it has reached an agreement with SuSE Holding AG, Europe's largest Linux distributor. Under the deal, SuSE will bundle and distribute Unicenter TNG Framework and management APIs with its SuSE Linux CD for free. In exchange, Computer Associates will include a free copy of SuSE Linux on Unicenter TNG Framework CDs distributed in Europe.



Over 2.5 million Internet and intranet connections are made every day using Ascend products. So no part of your organisation need be out on a limb.

Just because your staff, business partners and customers are mobile or work from a remote location, a branch office, a hotel room, an airport lounge or even from home, they don't need to be cut off from your business network. They don't have to sit on top of your corporate LAN/value-added services to take advantage of them.

Remote networking allows you to provide the same information resources to personnel in the field that staff working in a central office take for granted. Today, sophisticated digital technologies and advanced communications services cut across industry lines and international borders. Now, it's possible to transparently access corporate data at lightning speed from a branch office half a world away.

Ascend is both a pioneer and world leader in this technology. It has been chosen by the majority of the world's largest network service providers to bring low-cost, easy, fast communications to the world at large. And Ascend is now doing the same thing for the corporate intranet community.

Its secure, manageable and scalable remote access networking solutions provide your employees, your partners and your customers alike with controlled access to your information network and value-added services.

Using Ascend products, remote users and branch offices enjoy the same access to e-mail, groupware, collaborative sessions and in-house applications as their central office-based counterparts. You can even help those with intensive data communications needs to work from the field, easily and efficiently.

What's more, Ascend can provide you with the same security, network management and network integrity, no matter where the users are set up.

No-one is more experienced than Ascend in solving the problems of remote office connection via the Internet, intranet or extranet. So, don't be caught out on a limb when you're planning your remote access network. Simply call us for more information, a free copy of Ascend's Corporate Remote Access Guide or ask for a list of our expert integrators.

**Visit us at Booth no 4F1-01 at CommunicAsia 99
June 22-25, 1999 Singapore Expo Hall 4**

Hong Kong (852) 2844 7600
Singapore (65) 738 7723
info@ascend.com.hk
http://www.ascend.com



Where
Network
Solutions
Never End.™

Adobe launches latest version of Acrobat 4.0

Adobe has announced Adobe Acrobat 4.0, the latest version of its universal document exchange application designed to enable users to share, collaborate on and deliver documents to all parts of their office computing environments.

Adobe Acrobat 4.0 allows information to be combined with a variety of files such as text, tables, and graphics within portable document format (PDF) file and captures Web pages through HTML conversion into fully

formatted PDF documents. Adobe Acrobat 4.0 also features a tool to convert scanned paper documents to PDF.

For local users, Adobe Acrobat 4.0 is double-byte-enabled for Chinese-language reading and processing capabilities and also embeds Asian-language fonts in PDF files.

Some of the new features of Adobe Acrobat 4.0 include worldwide PDF access which allows the user to use any language version of Adobe Acrobat 4.0 and Adobe Acrobat

Reader to view and work with documents in any supported language. Drag and Drop PDF Creation allows users to drop the icon of any Word, Excel or Microsoft PowerPoint file onto the Acrobat desktop to automatically convert it to PDF.

When converting a file to PDF the user can use the Automatic PDF output optimization to select one of three options to optimize it for output on a printer, a professional printing press or on the Web. Web capture converts Web pages or en-

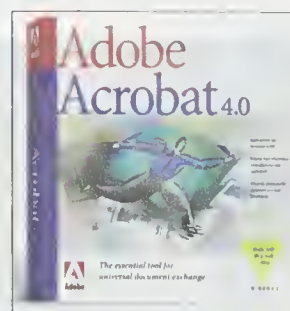
tire sites into PDF files that preserve the pages' graphics, fonts, colors and active hyperlinks for offline viewing, printing and archiving. Acrobat 4.0 also automatically creates bookmarks from HTML tags.

In addition, Acrobat 4.0 includes batch processing; interactive review and mark up; document comparison; image, text, and graphics touch up; and digital signatures.

Adobe Acrobat 4.0 software is available now through Hong Kong distributors PacRim Tech-

nologies and SIS International for both Windows and Macintosh computers for HK\$2,200. Additionally, volume pricing is available and registered users of Adobe Acrobat software, version 2.0 and higher can upgrade for HK\$850.

For more information, contact PacRim Technologies by phone at 2832-9322 or fax at 2838-3603 or SIS International by phone at 2565-1682, by fax at 2562-7428 or visit Adobe's Web site at <http://www.asia.adobe.com>.



Acrobat 4.0 allows documents to be converted from any application to Adobe Portable Document Format.

Xircom targets the handheld PC market

Xircom, a provider of connectivity systems for mobile computing professionals, has announced its entry into the Windows CE-based handheld connectivity market with its CompactCard family of products.

Xircom CompactCards provide access to data and applications on corporate networks, the Internet and other online resources. These cards are compatible with all Windows CE-based handheld PCs and provide a variety of functions including Ethernet, modem and wireless GSM connectivity.

Handheld PCs connected with a Xircom CompactCard will extend corporate applications and provide access to enterprise data from any location whether in or out of the office. Critical corporate applications such as group scheduling, time tracking, project management, database resource sharing and e-mail become convenient and easily accessible via mobile workers' handheld PCs, company officials said.

The CompactCard Ethernet 10 will be available in June for US\$149 and is the first in the Xircom CompactCard family which also includes modem and wireless GSM connectivity sys-



Xircom's Type II CompactFlash cards are compatible with all Windows CE-based handheld PCs.

tems for Windows CE-based devices. The CompactCard Ethernet 10 provides users of Windows CE with connections to 10Mbps networks for enterprise-wide e-mail access, Internet browsing and data synchronization.

In addition, the product features BatterySave which is a power manager for longer battery life and ships with the Xircom CardCaddy converter that enables the CompactCard to fit larger handheld Type II PC Card slots.

For more information, contact Xircom by phone at 65-732-5001, by fax at 65-732-5002 or visit the company's Web site at <http://www.xircom.com/>.

Exabyte delivers tape drive aimed at SMEs

Exabyte has launched the Mammoth-LT tape drive, a high-speed tape drive geared toward small- and medium-sized enterprises (SMEs).

The Mammoth-LT offers 28G of capacity and 240M per minute throughput and can back up 14.4G an hour.

Other features of the tape drive include the Dynamic Head Cleaner which provides preventative maintenance by automatically cleaning the read/write heads at every load/unload cycle; TapeAlert allows compatibility for advanced device monitoring and diagnostics for preventative maintenance and error recovery; partitioning which allows for up to 64 partitions in order to enable faster access to data; and high and low density SCSI connectors for integration in PCs, workstations and servers.

Currently shipping, Mammoth-LT is available through Exabyte's Hong Kong distributors, Automated Systems and Laser Computer Systems, for HK\$15,500.

For more information, contact Automated Systems by phone at 2608-3603, Laser Computer Systems by phone at 2753-1668 or visit the company's Web site at <http://www.exabyte.com>.

You are cordially invited to.....

'Mining Your Business' SAS Educational Seminar Series

THE 'FATHER OF DATA WAREHOUSING' SPEAKS OUT

Bill Inmon

- Data Warehouse architecture today
- The truth about the DataMart approach to Data Warehousing
- The new dimension of Decision Support System processing
- Retrieving and using information from an ERP implementation



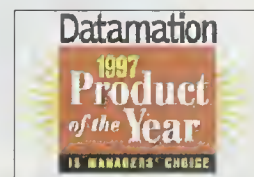
Speaker:
Mr. BILL INMON

Bill Inmon, father of the Data Warehouse concept. Bill has published 36 books and over 250 articles in trade journals. He is known globally for his seminars on developing Data Warehouses and has been a keynote speaker for every major computing association.

ALSO SHARING THE VIEW FROM DELOITTE CONSULTING

Sean Clifford, Partner

- Implementing a successful Data Warehouse



Date: MAY 31, 1999 (Monday)

Venue: SALON 4-5, LEVEL 3, JW MARRIOTT HOTEL, PACIFIC PLACE, 88 QUEENSWAY, HONG KONG

Time: 1:45pm to 5:00pm

Register now by filling this form and fax back to Ms. Julisa Au at 2568-7218 or call 2568-4280 for inquiries. For more information, please visit www.sas.com

REGISTRATION FORM (FAX TO: 2568-7218)

- ☐ I would like to attend 'Mining Your Business' SAS Educational Seminar Series
- ☐ I cannot attend the seminar. Please send me more information

Name: _____ Title: _____

Company: _____ Additional Attendees: _____

Tel: _____ Fax: _____ E-mail: _____

Sponsored by:



SAS Institute Ltd., 14/F, Cityplaza 4, Taikoo Shing, Hong Kong Please visit our Web Site @ www.sas.com

MARKET PLACE

One Stop Shopping for Barcode Systems

NOVEXX

PUMA, LION, TIGER, TIGER XXL

Powerful Bar Code Printer

- Super speed up to 12"/sec
- Max printing width from 4" to 8.4"
- Perfect printing by newly developed Near-edge print head
- Easy adjustment of full range material
- Automatic ribbon-saver
- Windows/Windows NT driver available

FUJITSU

Scanning System

TeamPro 3100 Bar Code Handheld Terminal

- Light weight just over 1 lb
- A large and easy-to-use touch screen
- Three ergonomically positioned scanner buttons
- Built-in PCMCIA slot
- Expand memory up to 64MB
- Support both batch and wireless communication
- 2.4 GHz (License Free)

VeriAlign

IMAGETeam 3800

- Long Range Bar Code Scanner
- Up to 6" reading distance
- Bright, sharp imaging line with high resolution
- Smooth fit all sized hands
- Connects to all specialty terminals
- Excellent quality (Long Warranty)

ZALTON ENTERPRISES LTD.
Tel: (852) 2928 6098 Fax: (852) 2341 8886
E-mail: mktg@zalton.com Internet: www.zalton.com

DELTEC

Innovators in Power Protection

Uninterruptible Power System

- Power rating from 250VA to 500KVA
- Line interactive & True On-line technology
- Single phase & Three phase solution
- Parallel & Isolated redundant configuration
- Network power management software control

勁達電子有限公司
Tiger Force Electronics Ltd.
Rm 1204 Stanhope House, 734-738 King's Rd., H.K.
Tel: (852) 2774 2732 Fax: (852) 2774 2731
E-mail: deltec@netvigator.com

CGS SuperSYS for AS/400 & ES/9000

支持 3270 及 5250 各種連線方式

- Channel Attach (BUS & TAG)
- 802.2 (Ethernet & TokenRing)
- SDLC (V.24, X.25, X.35, Frame Relay)
- ASYNC
- Twinax
- Coax

提供 SuperSYS 通信可靠性

- 最多支持 5,000 工作站、15,000 LU 及 250 PU
- APPC File Transfer Service
- Shared Folders Service
- RAS (Remote Access Service) 遠端存取服務
- Dynamic Load Balancing (動態負載平衡)
- Hot Server Backup (線上熱備份)
- CGS Print Service
- LU Pooling

SuperSYS 伺服器特色

- Pre-Failure Warranty (故障預防先報)
- Server Health Logging (健康記錄)
- Insight Manager (網絡管理)
- IRC (Integrated Remote Console) 整合式遠端控制台
- ASR-2 (Automatic Server Recovery) 自動回復能力
- I/O BUS Utilization Monitor
- Fault Tolerance (容錯能力)

提供 3270 及 5250 中文仿真

- Win NT 95

提供網絡連線環境方式

- Branch (分散式)
- Central (集中式)
- Distributed - SOGA (分佈式)

支持各種 PC 網絡通信

- TCP/IP
- NetBEUI
- IPX/SPX
- SNA
- DLC

CGS INTERNATIONAL (H.K.) CO. LTD.
http://www.cgs.com.tw
Distributed by AS International Ltd.
Tel: 2887 1796 Fax: 2887 6840

unitech - PORTABLE TERMINALS AND BARCODE PRODUCTS

PT-700 Laser Portable Terminal

- built in laser diode scanner with 3 way laser triggering
- large graphic LCD with backlight (able to display Chinese Characters)

PT-870 Portable Terminal

- infrared (IR) and Dsub 9p serial communication interface
- optional snap on modules for extended memory, modem and printer
- accepts barcode input from wand, CCD or laser diode scanner and slot reader

Keyboard/Terminal Wedge Reader

- accepts input from wand, CCD, or laser diode scanners
- multiple ports to accept barcode, magnetic and RS-232 input simultaneously
- connects with popular types of PC and terminals

MS-580 Laser Scanner

- 3-IN-1 interface RS-232 Wand emulation and Keyboard wedges
- support trigger and hand-free read mode
- resolution up to 55 mils

MS-680 Laser Scanner (with Mylar® scan element)

- 3-IN-1 interface RS-232 Wand emulation and Keyboard wedges
- 80mm scanning width
- resolution up to 0.127mm

MS-265 CCD Scanner

- 3-IN-1 interface RS-232 Wand emulation and Keyboard wedges
- 80mm scanning width
- resolution up to 0.127mm

MR-350 Data Collection Terminal

- ideal for time and attendance, access control, shop floor control, job costing, etc.
- multiple interfaces for built-in/external barcode and magnetic readers
- programmable in Microsoft C, FORTRAN, BASIC, IBM Macro Assembler, and Jabber Pro
- optional built-in modem and UPS

Mylar® is registered trademark of Symbol Technology. The Mylar® scan element has life time warranty.

Hong Kong Sole Distributor: **Systems General Ltd.**
Room 307-309, 3/F., Sterling Centre, 11 Cheung Yue Street, Cheung Sha Wan, Kowloon, Hong Kong.
Tel: 2743 2018 Fax: 2375 0655

Tally® T2060 繁體中英文印表機

中文視窗列印新革命

Chinese Window = 2-Bytes Code Printing

- HEAVY DUTY
- HIGH SPEED PRINTING 990 CPS (450 LPM)
- ESPON IQ COMPATIBLE
- BUILD-IN TRADITIONAL & SIMPLIFIED CHINESE CHARACTER SETS
- AUTO PAPER THICKNESS CONTROL
- DUAL INTERFACE (CENTRONIC & RS232, AUTO SWITCHABLE) - for DEC, IBM, HP, UNISYS AND UNIX SYSTEM
- 2 BYTE CODE PRINTER DRIVER FOR CHINESE WIN. 3.1, 95 AND NT

AS INTERNATIONAL LIMITED
Rm 1006, 10/F, Eastern Harbour Centre, 28 Hoi Chak Street, Quarry Bay, H.K.
Tel.: (852) 2887 1796 Fax.: (852) 2887 6840 http://www.asintl.com.hk

The best choice for Fiber Series

New

Fiber Optic Distribution Frame

19" Ultra-Wide Racking System

Action Precision Limited
Tel: +852 2172 4117 Fax: +852 2172 4113
E-mail: info@action-hk.com
Web site: http://www.action-hk.com

SKF 19" Fiber Series:

- 19" Fiber Optic Distribution Frame
- Rack mounted & Wall mounted Fiber cabinets

EIA Standard Racking System:

SK Series

- Panel Widths : 19", 23", 24"
- Heights : 6U up to 58U
- Depths : 24", 30", and 35"

Open Rack Series:

- Panel Widths : 19", 23", 24"
- Heights : 40U (standard)

Wall Mounted Series:

- Panel Widths : 19"
- Heights : 6U, 9U, 12U, 15U
- Depths : 14", 18", and 22"

Other new products:

- IP standard Racking System
- Consoles & LAN Centre
- Ultra-wide Cabinet for networking & Cabling

We also deliver in China & Ex-stock in Hong Kong

中文 Wireless Network Terminals

Host Computer: UNIX, AS/400, Netware, Windows NT

Wireless Terminals

Wireless Penbased Terminals

Access Point

PCMCIA Card Radio

Bridge

Bridge

Up to 20 Kilometers Speed up to 4 Mbits/sec

Network type: Ethernet, Token Ring, Local Talk

Suitable Application: Warehouse, P.O.S., Hotel, Manufacturing...

傲天科技有限公司
MARVEL TECHNOLOGY CO. LTD.
For more information: www.hk.super.net/~marvel
China Office: Beijing, Shanghai, Wuhan, Xian, Chengdu, Guangzhou
China Head Office: (86-20) 8657 5456
Tel: 2922 4368 Fax: 2764 8932

WORLD'S FASTEST Desktop Color Page Printer

12ppm in color!!

- A3 Printing
- 200 MHz RISC/64 bit RISC Processor
- True 600 x 600 dpi 1200 Image Quality Mode
- Networkable on Ethernet 10/100, Token Ring

Free set of toner(CMYK) + Ethernet Card worth HK\$8,500. For a limited time only

Lexmark Optra Color 1200

PRINT LEXMARK Pacific Logic Ltd.
Your printing solution provider
Address: Unit 1607, 16/F, Emperor Group Centre, 288 Hennessy Road, Wanchai, Hong Kong.

CALL NOW FOR A FREE CATALOG!
2512-9315 Ms Yu

Reach 11,500 EDP professionals....
for only \$1,500

For enquiries, please call Andy Lo or Connie Yip
Tel: 2861 3238 E-mail: Mkt_HK@idg.com.hk

Total Bar Code Solution Applications



TEC Bar Code Thermal Printer
Print bar code, graphics include Chinese
10 inches / sec print speed
Windows / DOS Driver
Connect PC, AS400, Unix, Main Frame
Heavy duty, exceptional print quality
Label / tag, ribbon accessories



Bar Code Laser Data Terminal
80486 Processor, 33MHz
DOS 6.220S
PCMCIA Card Slot
16 line graphics display include Chinese
Wireless RF networking
2.4GHz License free



PSC Bar Code Scanner
High performance laser scanner

Data Collection network
Warehouse control
Distribution logistic
WIP/MRP system interface
Asset control
Supply Chain Management
Point of Sales
Visitor Management System

Hong Kong Office
Tel : (852) 2370 2227
Fax : (852) 2370 2054

Guangzhou Office : 86-20-81087505
Shanghai Office : 86-21-62625250
Beijing Office : 86-10-62522043
Chengdu Office : 86-28-5212823

Systems Scanning Ltd. 掃描系統有限公司

INFO TECH

INFOTECH SERVICES (HONG KONG) LTD

Room 609-610 Tower 2, Lippo Centre, 89 Queensway, HK
Hotline: 2836 0363 (6 lines) Fax: 2836 0351
Web: www.infotech.com.hk E-mail: infote@ibm.net

AS/400 & PROPRIETARY PLATFORMS DEVELOPMENT

Regional IS/T Manager 455-700K 8 yrs+ multinational at least 3 yrs IT or IS Mgr work exp, excellent English; BPCS wholesale, trading, marketing & sales application exp; frequent travel in AP region
Insurance Consultant 390-585K 5-9yrs s/w vendor health benefits, life insurance application package; COBOL/400; RPG/400; regional travel; gd English; Tandem Contract SA/APs 30-40K 3-4yrs finance inst COBOL, TAL, Pathway, Enscribe, Enform on Tandem NSK; securities market application implementation COBOL/400 Contract SAs 25-35K 5 yrs+ bank COBOL/400 on AS/400; PowerBuilder; banking projects Systems Analyst-BPCS 273-325K 4-5yrs trading co RPG/400 on AS/400; Lotus Notes; BPCS, distribution projects COBOL/Natural Contract SA/APs 20-45K 2-5yrs bank COBOL, Natural, CICS on MVS; money mkt, Y2K projects POLISY/400 APs 208-260K 2 yrs+ insurance co COBOL/400 on AS/400; POLISY/400; insurance projects RPG/400 Programmer/AP 156-234K 2 yrs+ s/w hse RPG/400 on AS/400; Oracle, SQL Server, WinNT, Novell;

LAN & CLIENT/SERVER DEVELOPMENT

Contract IT Specialist - Macau 35-45K 3 yrs+ vendor SOL*Forms 3.0, SOL*Reports, C, Pro*C, Oracle 7 on RS/6000 AIX; shell script programming; immediately available; work full time in Macau with allowance
6Mth Contract Developer 33-38K 3-4 yrs govt Oracle database, Windows NT; Developer/2000, Platinum InfoReport; pcAnywhere, MS NetMeeting; Mandarin, overseas coordination
Contract SA/Consultant 21-26K 4 yrs+ insurance Visual Basic, SQL Server, Win NT; life insurance agency compensation, payroll, web applications
Contract SA/APs 20-37K 2-7 yrs vendor VB, C, Oracle on UNIX; retail banking application, development, testing; immediate available preferred
Senior Web Developer 260-364K 2 yrs+ marketing co Java, Javascript, VBScript, CGI, HTML, ASP, Perl, Oracle; Internet security SET, SSL, Firewall; E-commerce
Oracle Developer/2000 Contract 20-36K 2 yrs govt Oracle Forms 5.0, Reports 3.0, SOL* Plus, PL/SOL, Oracle 8, SSADM; centralized booking application
IT Specialist 208-286K 2-4 yrs manufacturer SOL Server, MS BackOffice, Intranet, mfg project, PPC travel
ERP Consultant 208-260K 1-3 yrs software hse ERP, supply chain, mfg application, Sun Account/Flex Accts
Web Programmer 195-260K 1-2 yrs property co HTML, Java, Javascript, Active X, ASP, CGI; Oracle, UNIX
Sr Programmers 195-247K 1-2 yrs service co either Developer/2000 or Pro*C, Oracle on UNIX; in Shatin
6 Mths Contract AP/P 15-21K 1-2 yrs vendor PowerBuilder, MS C, Oracle on NCR UNIX, retail projects
PowerBuilder SA/Sr Ps 169-416K 1-6 yrs co group PowerBuilder, SOL Server on Windows NT; inventory projects
C++ Analyst Programmers 169-234K 1-2 yrs software hse Visual C++, SOL Server/Oracle; supply chain, accts projects
Visual Basic APs 169-234K 2-3 yrs software hse VB 5.0, SOL Server on WinNT; Access; Oracle, UNIX

SYSTEMS & NETWORK SUPPORT

Contract Sys/Network Admin 31-45K 3-5yrs govt body HP9000 HP-UX, shell script, C/Perl, OpenView, Windows NT Server; Cisco IOS; Web Server; performance tools; system/network integration, U/Poly grad
Contract Sr AP 25-35K 5yrs govt body Windows NT Server is a must, MS Exchange, Lotus Notes is a plus; exp in AutoCAD, Office Automation project; familiar with LAN/WAN & FrameRelay
Govt Project Specialist 299-455K 5yrs vendor WinNT, Novell LAN; work with vendor/integrator for govt projects, good communication skills
Security Auditor 260-364K+housing 3-5yrs bank define & set up security standard, security/IT audit review; AIX, Solaris, TCP, WinNT, Notes, Firewall
MIS Officer 234-351K 4yrs hi-tech co WinNT, Novell & MS Exchange, infrastructure, vendor liaison
SCO UNIX Regional Support 195-260K 1 yrs+ test service SCO UNIX; Oracle; UUCP, X400, good English
Contract Technician/Engineer 15-17K 1-2yrs vendor Windows NT; MCSE; UNIX, hardware service support
Systems Engineer 182-208K 2-3yrs dealer Windows NT, UNIX; Oracle, SOL Server, Web server
2-10 pm Shift Operator 12-15K 2-3yrs bank NT Server 4.0; Novell; LAN admin, helpdesk/hotline
WinNT Technical Support 130-195K 2yrs retail co Windows NT; Internet/Intranet; RS/6000, CC Mail
Operator/Support 117-143K 2-3yrs software hse AS/400; PC LAN; day-to-day operation, HKCEE full cert

SALES & OTHERS

Sales Manager 400-500K 5-10yrs dealer sell brand name PC, printer, network & s/w solution; solid local corporate customers PC/SI direct sales records

Established in 1988, InfoTech is the leading IT recruitment agency. For sensitivity reason, top senior and many other posts are not listed here. Visit our home page, review and on-line register our latest vacancies now.
<http://www.infotech.com.hk/>



GLOBAL IT&T is a leading Information Technology Recruitment Firm specializing in both career placements and interim or contract assignment.

Financial System Administrator
3-4 yrs exp on NT and fund management software package.
Technical Support Manager
Min 4 yrs exp in NT, LAN/WAN & E-com. develop.
ERP Consultants
4 yrs IT exp with ERP knowledge and full development cycle.
Senior Network Analyst
4 years in LAN/WAN Administration & Support on FRAME RELAY, X.25, TCP/IP, CISCO EQUIPMENTS. Inter/Intranet networking experience.
Senior Unix Administrator
4 years in UNIX administration with ORACLE database experience.

Please write in strict confidence to:
E-mail : paul.siu@selectglobal.com
Fax : 2526-7003
Address : Room 1422, Prince's Building, 10 Chater Road, Central, H.K.



東昇辦公室自動化系統
Eastop Office Automation System
Best office assistant. Save cost. Enhance company image. Increase competition power.

- ✓ Trading, Account, Inventory module
- ✓ Multi-warehouse, Lot/Serial number
- ✓ Multi-level BOM
- ✓ Multi-language
- ✓ Multi-user
- ✓ Multi-Currency
- ✓ Year 2000 Compliant



For Windows/95/98, NT & Multi-tier C/S

Free Demo: Wednesday 2:00pm - 5:00pm
Please call Sophie Cheng to reserve a seat

東昇電腦顧問
Eastop Computer Consultants
A Division of Eastop Electronics Limited
Tel: 2357 9088 Fax: 2357 9872
Web-site: www.eastop.com

CHINA VB PROGRAMMERS AVAILABLE

We are a VB developer located in China looking for contract opportunities with U.S. developers or MIS departments of small to medium size businesses. Interested companies, please contact sherman@officeclub.net



IBM NETWORK PRINTERS

20ppm printer at 16ppm price



- A3 printing
- 8MB/max 96MB
- Adobe Postscript 3
- True Support AFP/IPDS
- Toner Miser

New Low Price

IBM InfoPrint 20
(Free Ethernet card worth \$3,500)
(For a limited time only)

*Toner Miser can increase toner yield up to 21,000 pages

SAVE 50%

ON SUPPLIES COST*



ALSO AVAILABLE IBM InfoPrint 40


Pacific Logic Ltd.
Your printing solution provider

CALL NOW FOR A FREE CATALOG!

☎ 2512-9315 Ms Man

Address: Unit 1607, 16/F, Emperor Group Centre, 288 Hennessy Road, Wanchai, Hong Kong.


ISO 9002 Certified

HK Government
HK Telecom
approved supplier

CHLORIDE UPS System

Also specialized in:

- Computer room turnkey design
- Precise control A/C
- Raised floor
- Data cabling & electrical
- Fire protection



250VA - 3000KVA

NEWTECH TECHNOLOGY

Tel : 2754 3628
Fax : 2707 9811



Securing the future of software

Sentinel Family is the most reliable and fully-supported hardware key solution for programs running over:-

- Windows
- DOS
- O/S2
- Macintosh
- LAN
- UNIX/open

STOP giving your software away!




AlfaLink Technology Co., Ltd.
Rm. 1212, Tower A, Hungghom Comm. Centre,
39 Ma Tau Wai Road, Hungghom, Hong Kong
Tel: 2333-0626 Fax: 2333-0820

Established in 1988, InfoTech is the leading IT recruitment agency. For sensitivity reason, top senior and many other posts are not listed here. Visit our home page, review and on-line register our latest vacancies now.
<http://www.infotech.com.hk/>

Xerox unveils desktop-controlled printer

Xerox has announced the launch of the Document Center 265 Digital System.

The Document Center 265 is a 65 pages per minute (ppm) networked laser-printing device offering both network printing and digital copying.

The Document Center 265ST

allows users to print finished document sets from their desktop personal computers. The Document Center 265ST uses two microprocessors, one to handle network communication and raster image processing, which prepares a file for laser printing; and the

second to manage all functions related to xerographic imaging, document scanning and machine operations. It is equipped with 4G of hard disk space and up to 128M of RAM.

In addition, the system prints documents at a base resolution

of 600 dots per inch (dpi); however, users can select higher resolution printing at 1200-by-1200 or 1800-by-1800 dpi via emulation processes.

Xerox CenterWare software allows Document Center 265ST users to have point-and-click access to network printing and device status and control. Users can monitor and control document production remotely over a LAN, checking on and adjusting device settings, paper selections, job status and other parameters and features.

With CenterWare, system administrators can centrally install, manage and monitor a fleet of network connected Document Center systems remotely. Also an internal Web server allows Document Center systems to be engaged

over the Internet or corporate intranets. Using industry standard Web browsers, users can access CenterWare Internet Services to send print jobs remotely to any Web-enabled Document Center via the Internet.

The Document Center 265ST supports both Ethernet 10Base-T and Token-Ring interfaces, as well as network protocols, including TCP/IP, SPX-IPX, Banyan Vines, and EtherTalk. The models also support various operating systems including Microsoft Windows 3.1, 95, NT 4.0; Macintosh; Sun Unix; and IBM OS/2.

The Document Center 265ST is currently available for HK\$260,000.



The 265ST allows users to print finished document sets from their desktop PCs at 65 pages per minute.

For more information, contact the Xerox Customer Attention Center by phone at 2513-2513, by fax at 2513-2518 or visit the company's Web site at <http://www.xerox.com.hk>.

Extend the functionality of your NT or Novell Server?
Benefits your remote users with NT, Novell or UNIX Server?
"Merge" stacks of modems into a single Server?
Build-up a proven, stable & safety Remote Access Solution?

Get your answer in our

**Free Seminar
Product Training**

on May 28 Friday
at HKNet Theatre Room,
China Merchant Tower,
Shun Tak Centre,
168-200 Connaught
Road Central, H.K.

AGENDA:

- 2:15pm - 2:30pm Registration
- 2:30pm - 3:00pm Digi Remote Access Solution
- 3:00pm - 3:15pm Digi X.25 / Frame Relay Solution
- 3:15pm - 4:15pm RAS Configuration Details
- 4:15pm - 5:00pm Digi ISDN Solution

Registration Information: Please fill in the form and fax to 2310-2424 for reservation.

Name (Mr/Ms) :	Title :
Company :	
Address :	
Tel :	Fax :
e-mail :	

For enquiry, please contact Ms. Iris Wong at 2260-8322

During the product training, participants can obtain a certificate and also extra product discount.

* Special Promotion Discount for ISP *

Macintosh
Business Systems Ltd.
The Business - Mac Solutions

Go RAS, Go with



Vadem launches slim handheld PC

Vadem, a developer and manufacturer of mobile connected information appliances and software, has announced the local availability of its handheld PC companion, the Clio.

The Clio features the Microsoft Windows CE operating system and H/PC Professional Edition software for the handheld PC, which allows users to keep up with e-mail, access the Web and company intranets, access and update all of their personal data such as contacts, calendar and tasks, and synchronize this data with their PC.

Other features include the Clio's nearly full-size touch-type keyboard, 9.4-inch 256-color touch screen display, 12 hours of continuous battery life, built-in modem, instant on/off function and auto-synchronization. Another feature is the SwingTop design that allows users to work in three different configurations: traditional notebook-style, tablet, or



The Clio's SwingTop design lets users work in one of three different configurations.

presentation mode with a choice of either keyboard or natural handwriting input.

In addition to the pocket applications and software from Microsoft, Clio's built-in features include CalliGrapher, a natural handwriting recognition software from ParaGraph; the Vadem ViewFinder, a utility that gives users access to calendar, contacts, notes, and

tasks in one overview screen; Bsquare Bfax Pro for faxing capability, and a 33.6Kbps software-based modem.

Clio is now available at major computer outlets for HK\$7,788.

For more information, contact Vadem by phone at 2331-8933, by fax at 2331-8900 or visit its Web site <http://www.vadem.com>.

MARKET PLACE

RightFAX

RightFAX 6.0 offered the best. Savings in time, money, manpower

Features Included:

- ☒ Supported: Microsoft Exchange, Lotus Notes, SMTP/POP3
- ☒ Web Client supported
- ☒ Phone books supported, Outbook Contact List, ODBC phone book
- ☒ Internet Fax Tunnel
- ☒ DDI, DTMF, Voice DTMF
- CSID, OCR AutoRouting Supported
- ☒ Native Documents Conversion supported including Word, Excel, PowerPoint
- ☒ Fax Management through WaterMark and DOCS Open

International distributor
GREENSBORO TELECOM
Unit 1310B, Hi-Tech Industrial Center
491-501 Castle Peak Road, Hong Kong
Tel: 2755 3484 <http://demo.rightfax.com.hk>

SICON ups • power systems

Power Rating: 500VA-4800KVA

Special Features:

- User Friendly Display with LED indications & LCD Screen
- Advanced Self Diagnosis including Programmable Battery Test Function
- Possibility of Load Sharing Parallel operation from 5KVA onwards
- Surge & Overload Protection
- System Log Function
- Full Range of Shutdown Software for IBM, DEC, SILICON Graphics, SUN, AT&T, APPLE, HP & PC System
- 24 Hours Service Support

For more details : 2687 1755

JINCHAT ENGINEERING (H.K.) CO. LTD.
正卓工程 (香港) 有限公司
Rm. 2003 Shatin 11 Plaza, No. 11 Wo Shing Street, Fokan, Hong Kong
香港火炭禾盛街11號沙田11號廣場2003室

Beijing Office:
Rm. 1009 Jin Yun Plaza,
No. 43 Xi Zhi Men North Road
Beijing, China (100084)
Tel: (010) 62210184, 62210183,
62210187, 62226191
Fax: (010) 62226189

Shanghai Office:
Rm. D 28/F, Haining Plaza
1 Rulin South Road
Shanghai, China (200023)
Tel: (021) 64186071,
64186072, 64186073
Fax: (021) 64186070

Shenyang Office:
Rm. 505 507 Hua Xing Building
No. 58 Wen Hua Road
Heping District
Shenyang, China (110003)
Tel: (024) 3890033, 3899402,
3893511-3050 (30507)
Fax: (024) 3890033

Wuhan Office:
Rm. H 4/F, Ju Yin Building
No. 18 Han Kou Road
Dong Road, Wuhan, China
Tel: (027) 5423946
Fax: (027) 5423946

Guangzhou Office:
Rm. D4 7/F, Tower 2
Dong Jun Plaza
836 Dong Feng Road East
Guangzhou, China
Tel: (020) 87605299
Fax: (020) 87605299

ISO 9001 Certified

CE

E-mail: jinchat@hknet.com

APC Symmetra™ Power Array™
AMERICAN POWER CONVERSION

**The Most Reliable True On-line UPS,
Guarantee 100% Computer Uptime**

- **Upgrade Capability**
4 → 8 • 12 • 16KVA
- **Fault Tolerant Capability**
Single Point of Failure
- **Hot-Swap Modules**
Easy maintenance
- **Remote Access and Control**
Internet, Telnet, SNMP, Modem

APC products have won more awards than all other ups vendors combined
Sole Distributor and Service Centre

Jade Power Technology Limited
Rm 705-6, Laford Centre, 838 Lai Chi Kok Rd, Kln
Tel : 2782 7500 e-mail: jp@jade-power.com
Fax : 2783 7795 <http://www.jade-power.com>

I N V I T A T I O N

Envisioning  a new
IT world



拓
展
資
訊
科
技
新
領
域

You are invited to participate in the

IT Excellence
資 訊 科 技 **Awards**
卓 越 成 就 獎



Organizer

Hong Kong Computer Society

Sponsoring Organizations

Information Technology & Broadcasting Bureau,
Government Secretariat, HKSAR
Industry Department, Government of HKSAR

Supporting Organizations

Hong Kong Industrial Technology Centre Corporation
Hong Kong Information Technology Federation
Hong Kong Productivity Council
Hong Kong Trade Development Council

Honorary Auditor

PricewaterhouseCoopers

Funded by

Industrial Support Fund

IT Excellence Awards



The IT Excellence Awards is a professional initiative of the Hong Kong Computer Society and funded by the Industrial Support Fund. Established in 1998, the award scheme is an annual event which brings uniquely significant recognition to excellent IT applications and innovative IT technologies. The first IT Excellence Awards were presented in March 1999.

Award Categories

In the 2nd IT Excellence Awards, each entry is to be submitted under one of two streams – **IT Application Awards** and **IT Product Awards**.

The IT Application Awards will honour and promote examples of successful and effective in-house application of IT to heighten competitive advantage of company products or services. The entries will be scrutinised by the Panel of Judges in order to select an awardee for each of the following categories:

- functionality
- productivity
- competitiveness
- cost performance
- societal impact

IT Excellence Awards



The IT Product Awards will be granted in recognition of outstanding achievements in technological innovations. The entries will be scrutinised by the Panel of Judges in order to select an awardee for each of the following categories:

- functionality
- innovation
- marketing performance
- cost performance
- societal impact

Both streams aim to promote the increased use of IT, encourage further IT development in Hong Kong, stimulate innovation and competitiveness in the IT industry and raise public awareness of IT applications and development.

Eligibility

To ensure that the awards will principally benefit the local IT industry, all applications must be endorsed by a locally registered company. A significant part of development effort must come from local resources. Development tools can be local or overseas products, but more weight will be attached to entries that demonstrate the use of local products.

Judging Criteria

All entries will be judged according to the following criteria:

IT Application Awards

The selection criteria will focus on in-house services that have brought demonstrable improvements in functionality, productivity, competitiveness, cost performance and that have a favourable societal impact. Target users must be based mainly in Hong Kong although the scope of the project may be world-wide or regional.

IT Product Awards

The selection criteria will be based on product functionality and technical innovation, market performance and societal benefits, including any extension of the acceptance and understanding of information technology by society.



Panel of Judges

Entries will be judged by a panel of well-respected industry experts:

Prof Poon Chung Kwong *Chairman*
President
Hong Kong Polytechnic University

Mrs Cindy Cheng
Vice President
Hong Kong Information Technology Federation

Ms Annie Choi
Assistant Director-General of Industry
Industry Department, Government of HKSAR

Mrs Anna Lai
Deputy Executive Director
Hong Kong Trade Development Council

Mr Daniel Lai
President
Hong Kong Computer Society

Mr Stephen Lau
Privacy Commissioner for Personal Data

Mr Patrick Leung
Associate Partner
Anderson Consulting

Dr James Liu
Chief Executive Officer
Hong Kong Industrial Technology Centre Corporation

Mr Thomas Tang
Executive Director
Hong Kong Productivity Council

Mrs Jessie Ting
Deputy Secretary for Information Technology & Broadcasting
ITBB, Government of HKSAR

Prof Wong Yuk Shan
Vice President
City University of Hong Kong

Mr K.K. Yeung
Fellow
Hong Kong Computer Society

IT Excellence Awards



Key Dates

Deadline for entries: 30th June 1999

Assessment visits: October - November 1999

Final Judging meeting: December 1999

Award presentation: mid-January 2000

The Organizer

The Hong Kong Computer Society is a non-profit-making body of IT professionals established in 1970. Its mission includes the promotion of the use of IT and the fostering of the development of IT industry in Hong Kong. During its 29 years of existence, it has built up a wide and influential network of members drawn from the entire spectrum of services and industries. Their unique knowledge of the associated technologies and professions will prove essential to the successful promotion and smooth introduction of the IT Excellence Awards.

You are invited to participate in the event. Please contact the HKCS Secretariat for details.



Hong Kong Computer Society

Unit D, 1/F Luckifast Building

No. 1, Stone Nullah Lane

Wanchai, Hong Kong

Tel: (852) 2834 2228

Fax: (852) 2834 3003

E-mail: hkcs@hkcs.org.hk

URL: www.hkcs.org.hk/itawards

Special Promotion for **IBM** Ethernet Products

IBM 8245-012
12 ports 10/100 Auto Sense Slave Hub

HK\$4,743

IBM 8245-024
24 ports 10/100 Auto Sense Slave Hub

HK\$6,105

IBM 8245-112
12 ports 10/100 Auto Sense Master Hub

HK\$7,115

IBM 8245-124
24 ports 10/100 Auto Sense Master Hub

HK\$8,169



IBM 8275-324
24 ports no uplink module 5 Gbps backplane

HK\$12,111

Valid until 30 June 99
or while stock lasts

**IBM's Ethernet Solutions for
Small and Mid-Size Businesses
The ever competitive offer**

Who said expanding your business has to be difficult? All you need is a little help from IBM. These complete, end-to-end Ethernet solutions can give you the bandwidth-boost you need to pump up productivity without breaking the bank. And the whole process is positively pain-free. And all of IBM's Ethernet products are scalable and neatly integrated with your existing system to protect your current investment.

IBM Ethernet Solutions for Small and Mid-Size Businesses.

Your business is growing. Easier.

<http://www.ibm.com/hk/products/networking/index.html>

FREE
HK\$200
Sogo Coupon

Free

HK\$200 Sogo Coupon will be offered for every purchased hub of the above promotion products.

ACA-Pacific
The IT Marketing Company

IBM
Business
Partner

REPLY FORM

Please take a few minutes to complete this form and fax it back to us at **2838 5843** To appreciate your feedback, you are entitled to have a souvenir. Thank you for your reply.

Name	
Title	
Company	
Address	
Phone	Fax
E-Mail Address	

1. What is the number of LANs in your area of influence?

☐ 1-10 ☐ 11-25 ☐ 26-50 ☐ More than 50

2. How many endpoints do you have in your network?

☐ 0-10 ☐ 11-80 ☐ 81-650 ☐ 651-5,000
☐ More than 5,000

3. I am interest in (please check all that apply):

☐ Hub ☐ Switch ☐ Router
☐ ATM Solution ☐ Voice Solution ☐ VPN Solution
☐ Token-Ring LAN ☐ Ethernet LAN ☐ Others _____

please specify

4. Do you see a need to improve your LAN throughput and performance in the coming six months?

☐ I need more LAN performance ☐ Unknown
☐ I'm happy with my LAN performance

5. How will you be involved in the decision-making process?

☐ Decision maker ☐ Little or no involvement
☐ Researcher/Recommender ☐ Influencer

6. What is your time-frame for implementing a networking solution?

☐ 1-3 months ☐ 3-6 months ☐ 6-12 months ☐ Unknown

☐ **Please call me to discuss my networking requirements.**

Complete the reply form and you will get a special souvenir (while stock lasts)



Enquiry Hotline: 2919 7516

ACA-Pacific
The IT Marketing Company

Bobby's voyage to nowhere yields tips while Rose is stuck at home

I got back at rose for trying to black-mail me into taking her on vacation. Last week, I got to take a cruise on the Queen Elizabeth II, while she was stuck at home in San Francisco.

The cruise was with 500 CIOs from financial services companies — and I sincerely hope this voyage to nowhere does not become a metaphor for the careers of IT people in this industry.

It's interesting to note that with start-up companies such as E*Trade gaining momentum on the Web, the pressure on IT to become more customer-focused is immense. But at least one IT department has found an interesting way to contribute to the bottom line.

The IT folks at Morgan Stanley Dean Witter oversee six financial investments in six start-up companies that the IT people at the financial services company feel are key technology.

The first of the companies to go public will be Persistence Software this June, barring any last-minute acquisition of the company.

Meanwhile, whilst sipping tea aboard the venerable ocean liner, one wag related that we will soon all have our own butlers via the Web. Horizon Foods is working with Symbol and a start-up company called E-Butler to make picking up prepared foods at the supermarket a snap. Using a

NOTES FROM THE FIELD — Robert X. Cringely

bar code reader, people will be able to scan the food in their refrigerators, and then relay that data back to the supermarket over the Web.

My one request for this service is that the company is scrupulous about security: After all, I wouldn't want everyone to find out how much vodka I buy on Rose's behalf. And elsewhere on the Web, security continues to be a thorny problem. For example, iVillage.com, an online portal

for women, needs to close up a security hole with its postcard service. One reader passed along a URL to me this week that gives you a listing of e-mail addresses of everyone who sent a postcard, everyone who received a postcard and the type of card.

Consultants, too, are heading the way of all commodities on the Web. A Web startup plans to launch a consultant exchange that will allow people to see the history of different consultants online and compare pricing. Eventually, consultants will bid for jobs online.

Elsewhere in the world, it looks like Berkeley, California, where much

of the early work was done on the first commercial relational database that became Ingres, is trying to assemble another team of researchers to rebuild the relational database in a project that is known as Regres.

Informix is also looking backward, it seems, and unfortunately it appears that the folks over there continue to look a gift horse in the mouth. Apparently, some staffers are frustrated that the company has all the technical resources at hand to enter the rapidly growing application server market, but can't seem to see beyond the database market, where both Oracle and IBM have commanding leads.

— RESEARCH —

HORIZONS

The finger is key. Mytec Technologies recently introduced a mouse-like fingerprint recognition device that it says provides tighter network security than its competitors. Touchstone Pro, the latest in Mytec's Touchstone fingerprint-based biometrics line, will have a price of US\$299 when it ships in the third quarter of this year.

Fingerprint recognizers attempt to verify a person's identity by comparing scanned-in images of finger patterns against those of authorized users. The devices' sensitivity can be adjusted according to a company's security and convenience needs. The trade-off is between false positives that let unauthorized people in, and false negatives that reject valid users because of variations like skin moisture and scan quality.

Mytec says Touchstone Pro differs by running complex algorithms on an 80-million-instructions-per-second Motorola digital signal processor to holistically analyze the entire fingerprint, de-emphasizing temporary "minutiae," such as scratches, that can hurt the recognition rate. "We look at the gross sample of the pattern," says Terry Milkie, direct of engineering and new product development at Mytec. "A cut looks like noise on our pattern."

Touchstone Pro is also unique, says Milkie, in keeping all sensitive operations on the device and off the PC, where it is more vulnerable to theft and misuse. "We don't take the bounds of trust into the PC," Milkie says. Fingerprint scans are quickly turned into "bioscripts" (templates) that encode the pattern while discarding the fingerprint itself. (At least one competitor, Digital Persona's U.are.U., also employs templates.) Touchstone Pro can tie passwords and personal identification numbers to the bioscript, though users don't necessarily have to enter them.

Touchstone Pro plugs into the PC's serial port and requires a small AC adapter. It can be placed flat on the desktop or attached to the PC.

Biometrics is an emerging security technology that employs computers to uniquely identify a person by their voice, face, eyes, fingerprints or signature. Mytec competes with several other companies that sell small fingerprint-recognition boxes, among them Compaq, Sony, Digital Persona and Identicator.

Searchable AV. At the RealNetworks Conference and Exhibition '99, CEO Rob Glaser unveiled a project that is designed to make audio and video media searchable.

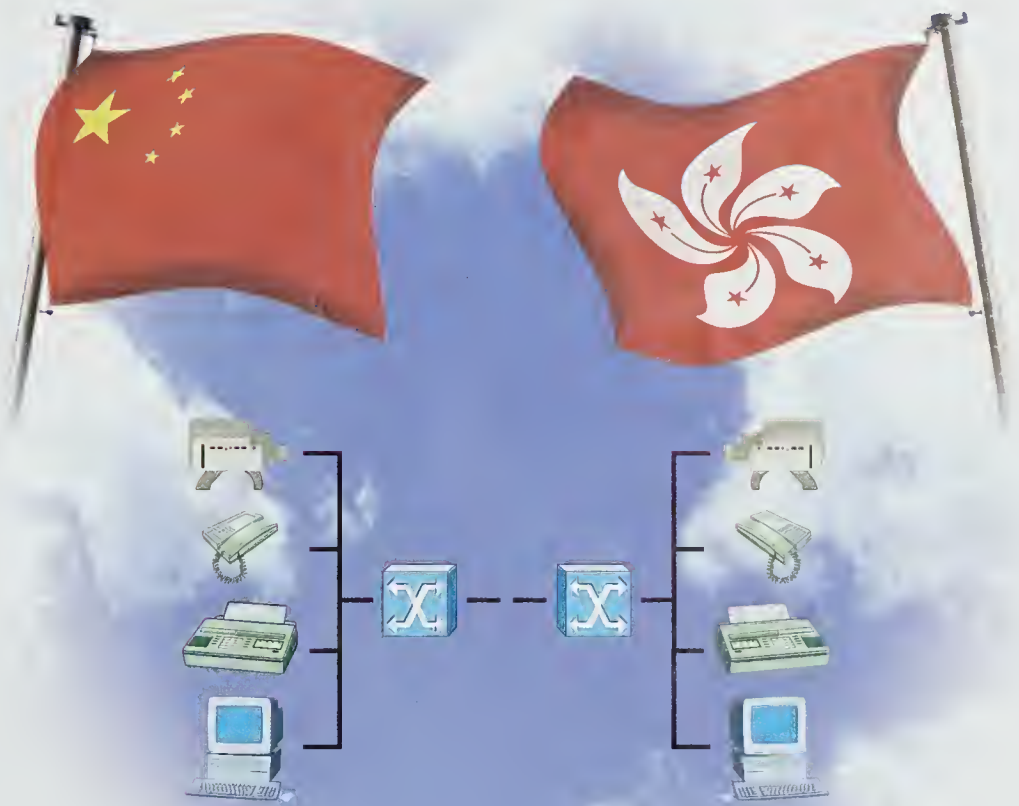
"Project Janus" will involve the creation of a standard categorization system for describing media content — be it audio or video. Janus will be implemented as an extension to the company's RealDeveloper tool, giving content creators the ability to categorize their own work.

Of more immediate impact is the company's announcement that it is in beta trials to integrate the RealPlayer G2 with Lotus Notes and Domino, letting users of the groupware system embed and play RealAudio and RealVideo within a Notes document. The plug-in takes advantage of Domino's media connection services and will be shipped with maintenance releases of Version 4.6.

RealNetworks has also made a deal with Inktomi that will allow caching of streaming media on Inktomi's line of caching servers. He says this will let content providers push the origination points closer to the edge of the network, alleviating some of the network congestion problems associated with streaming media.

Glaser also rolled out the company's newest desktop tool — Real Jukebox — which lets users collect, manage and listen to music with their PCs. Users can record their favorites CDs and download music off the Internet, then copy that music to many different digital media devices for mobile listening.

Building your own Network to Enhance Productivity and Save Cost ? We'll help you to do it Quicker and Easier



Now you can put inter-office voice/fax/data/video communications on a private network to improve productivity and save costs.

Building such network and coordinating between multiple parties could sometimes be tedious, time-consuming and frustrating.

With extensive telecom experience plus close relations with telecom services providers in both China and Hong Kong, Macroview can offer you a full one-stop-shop service in building your private networks :

Free network consultancy
• Help design your networks.

End-to-End solution
• Provide total network solutions from equipment, telecom services to equipment financing.

Project management

- Manage all vendors and service providers to deliver a complete solution on-time and hassle-free. Take away your burden in dealing with multiple parties and formalities.

Network management service

- Help manage and maintain your network with our 24-hour NMC and help-desk. Perform regular health checks and provide recommendations for enhancement.

Enquiry : 2903 7333

Macroview Telecom is a partner of Cisco Systems and the agent for Hongkong Telecom International Private Leased Circuit and International Frame Relay services.



高 威 電 信
Macroview Telecom

Hong Kong Office : Tel: (852) 2903 7333
Beijing Office : Tel: (8610) 6587 2520-21
Shanghai Office : Tel: (8621) 6299 2191
Guangzhou Office : Tel: (8620) 3879 2196
Web Site: www.macroview.com

"Lotus Domino and AS/400e.
The Perfect Match."



Domino+AS/400e = No sick days

For reliability, availability and security, you couldn't ask for a better combination than Lotus Domino running on AS/400e server. It's a perfect match that keeps your business-critical applications up and running, 24-hours a day, every day.

Find out more at www.as400.ibm.com/domino1 or call the IBM Sales Center at 2825 7878.



@ e-business tools

Buy now, start repayments in 2000

There has never been a better time to buy AS/400e. With IBM's special 12-month deferred payment offer, you can take delivery of your AS/400e now and start repayments in 2000 - with an effective flat interest rate as low as 2.5%. But hurry. Offer ends 8 June 1999.

Special low price Domino service package

For as little as HK\$12,000 you can buy a Domino service package for e-business. Ideal for small businesses, improve communications and information sharing while equipping your employees with the best online functions for e-business operations.

Attention: Purchase before 8 June 1999 and pay only HK\$9,999!

Don't delay. For more information, please call the IBM Sales Center Hotline at 2825 7878 or contact your IBM Business Partner Representative.

Deferred payment leasing offer applies to AS/400e server hardware and software for a two year lease period. Lease payment will not start until 12 months after initial purchase. A minimum monthly payment for the first 12 months is required. Rates and finance amounts are based on customer's situation and credit history, subject to IBM Global Financing approval. Offer valid for orders placed before 8 June 1999 and installed before 30 June 1999. Other terms and conditions apply. Domino service package includes Domino for AS/400e server and two Notes desktop client licences + free on-site installation for the Domino Server & two Notes clients, simple Domino mail enablement.

☐ Yes, please send me more information on deferred payment package and Domino service package.

☐ Yes, please have a representative contact me with information on AS/400e.

(Please print in capital letters)

Name: _____

Title: _____

Company: _____

Address: _____

Industry: _____

Tel: _____

Fax: _____

e-mail: _____

Fax to IBM Sales Center at 2523 0460.

Computer World